



2024 The Year of Protein

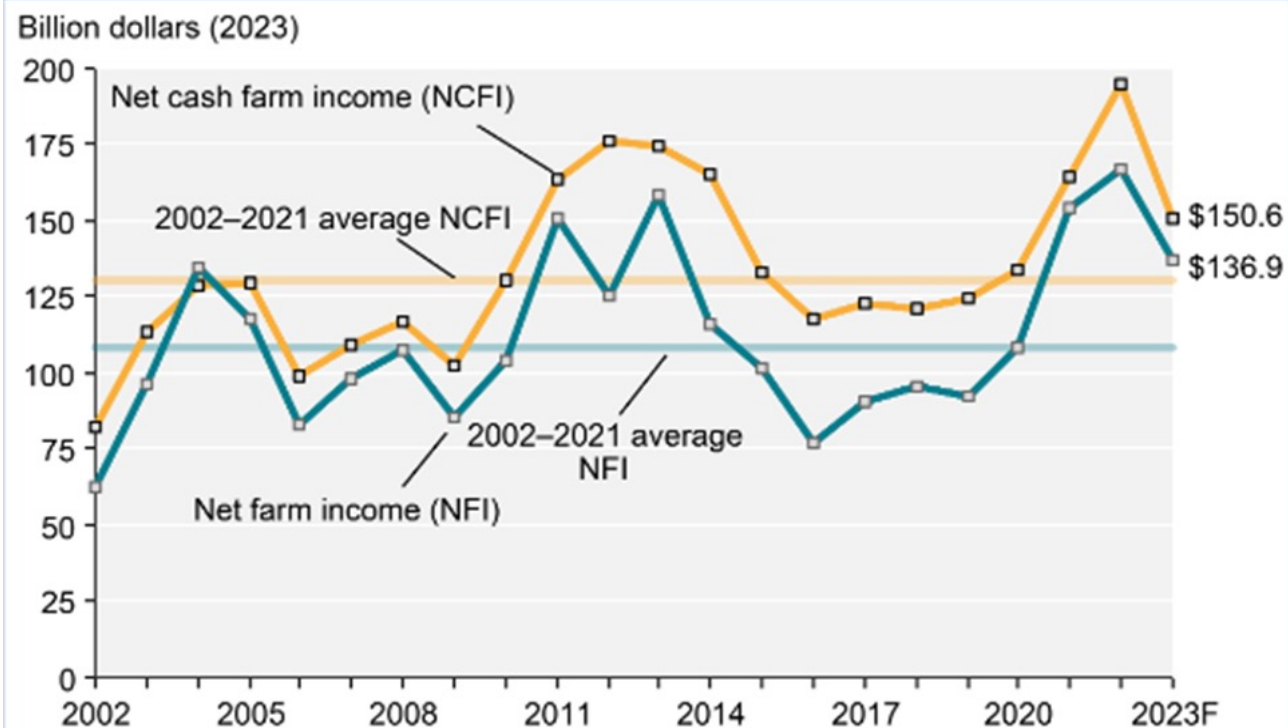
Daniel Basse President of AgResource

Wars add to Food Volatility/Insecurity

- **The Great Economic Reset Pauses as European/US/Global Inflationary Pressures Cool.** World Central Banks have hiked lending rates a record amount on a percentage basis which has cooled world inflation. Rising rates have caused what bankers intended; demand destruction. However, what the world needed was additional supply, something that is still in need today. The US dollar weakens on massive US debt.
- **Climate is producing greater incidence of extreme heat, floods and drought and the stagnation of per capita world grain yields.** Global ocean temperatures are at records which creates expanding weather volatility. Simple La Nina or El Nino analogs are no longer enough. Record consecutive Northern and Southern Hemisphere crops are needed to produce a much-needed supply cushion for world grain stocks.
- **China and the US clash on economic competitiveness which produces trade regionalization.** China's is the US's largest ag customer. China will secure a growing percentage of grain/soy needs from S America/Black Sea in the years ahead. Yet, China cannot afford to lose the US as its largest consumer goods customer. The speed of the trade transition depends on coming regional harvests.
- **US and world meat prices are forecast to rise in 2024 on tightening supplies.** The market needs to push the start of herd expansion which will be difficult on rising capital need and interest rates. 2024 will be the year of meats as US hog and cattle supplies decline to record lows.
- **Wars Produce Ag Market Volatility;** 1/ The Russian war against Ukraine, 2/ The war of world Central Banks against inflation, and 3/ the war of Mother Nature against world crop production due to climate variability, and the need for additional US and world meat supplies. The mix of variables produces extreme ag/financial market volatility. World farmers react to the volatility differently, but a multi year commodity bull market is emerging with food/energy gaining in political importance. There is no supply cushion to offset geopolitical strife, adverse weather and tightening meat supplies.

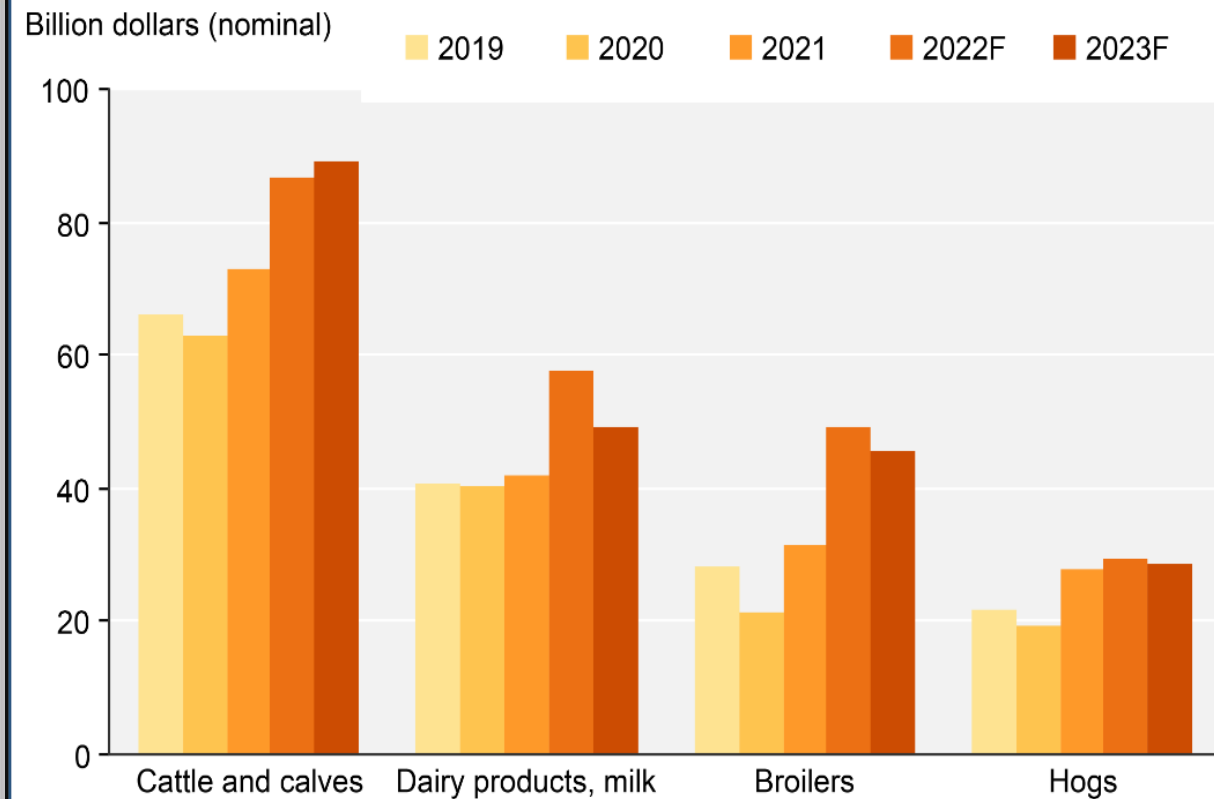
US 2023 Farm Income Forecast at \$150.9 Bil Dollars; Down 16%!

U.S. net farm income and net cash farm income, inflation adjusted, 2002–2023F



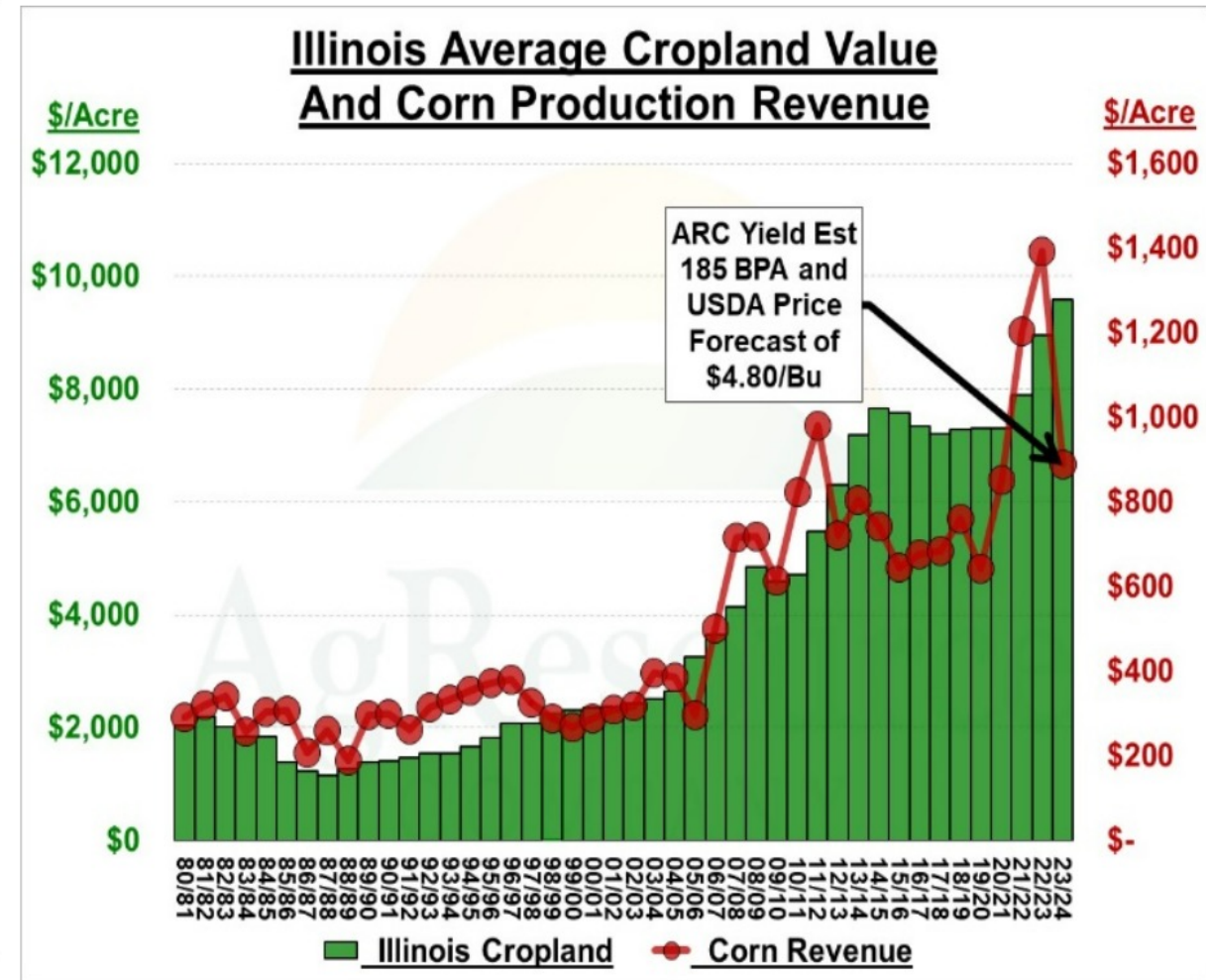
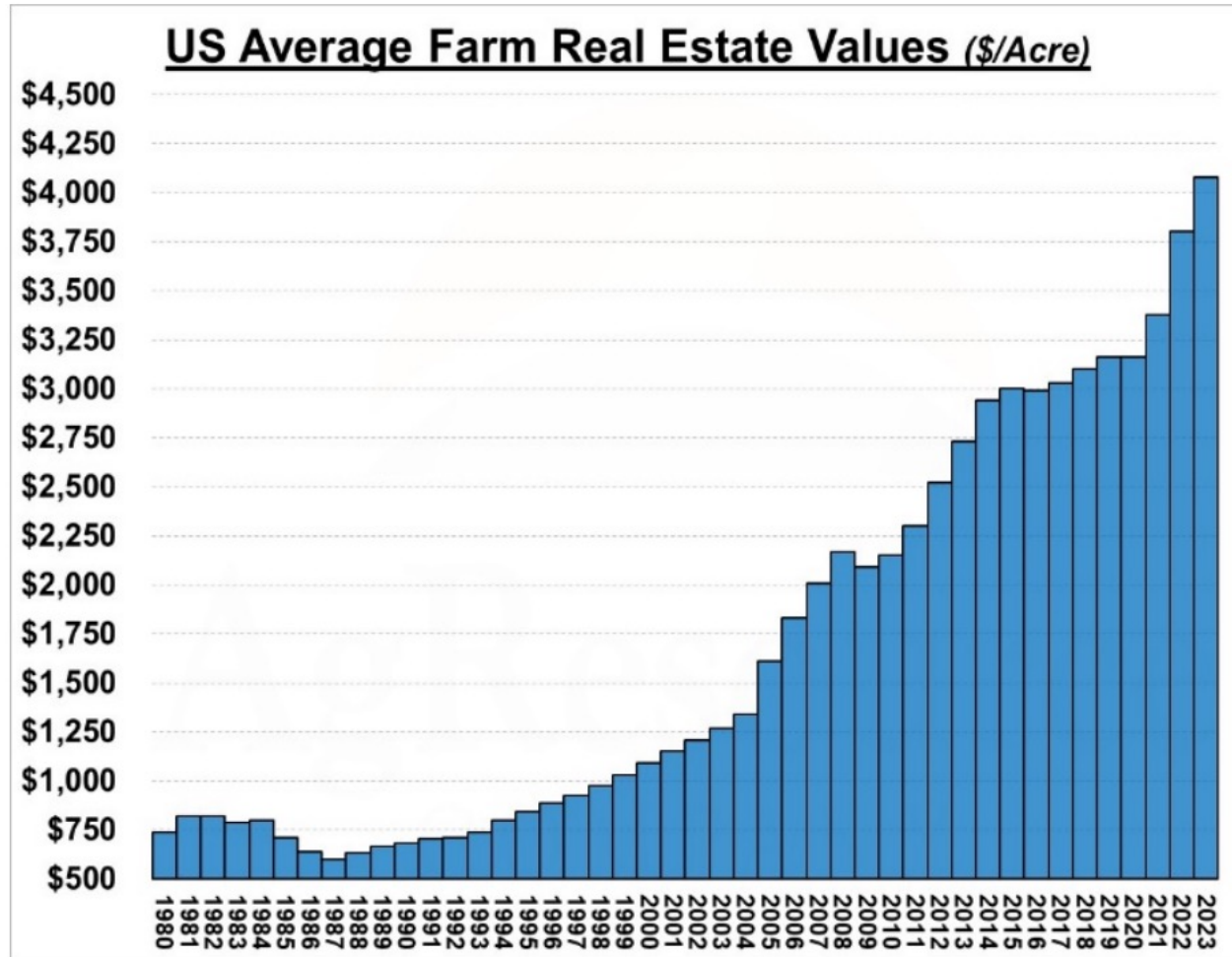
Note: F = forecast. Data for 2022 and 2023 are forecasts. Values are adjusted for inflation using the U.S. Bureau of Economic Analysis Gross Domestic Product Price Index (BEA API series code: A191RG) rebased to 2023 by USDA, Economic Research Service. Source: USDA, Economic Research Service, Farm Income and Wealth Statistics. Data as of February 7, 2023.

U.S. cash receipts for selected animals/products, 2019–23F

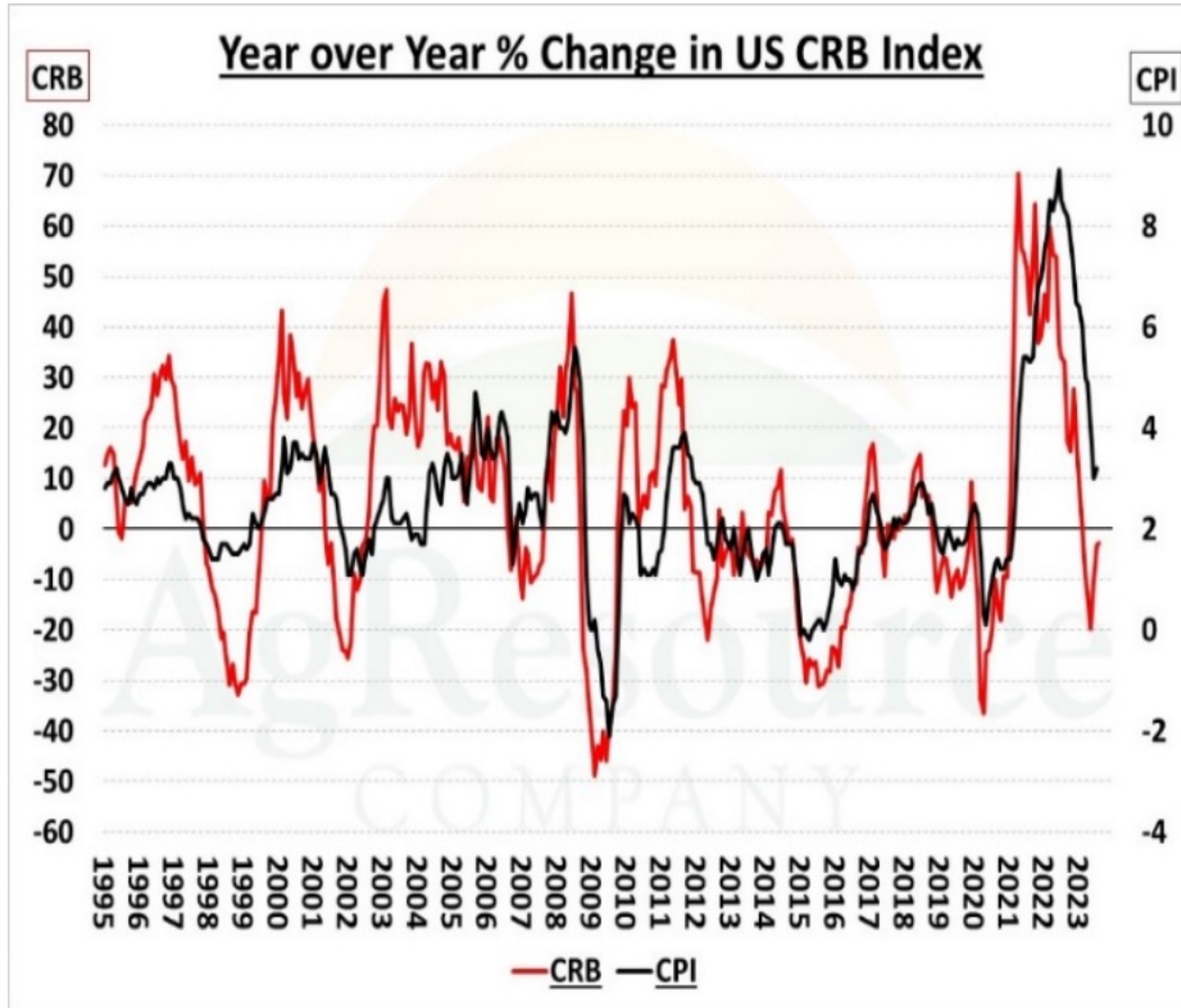


Note: F = forecast. Source: USDA, Economic Research Service, Farm Income and Wealth Statistics. Data as of February 7, 2023.

US Farmland Prices Keep Rising Regardless of Rising Lending Rates

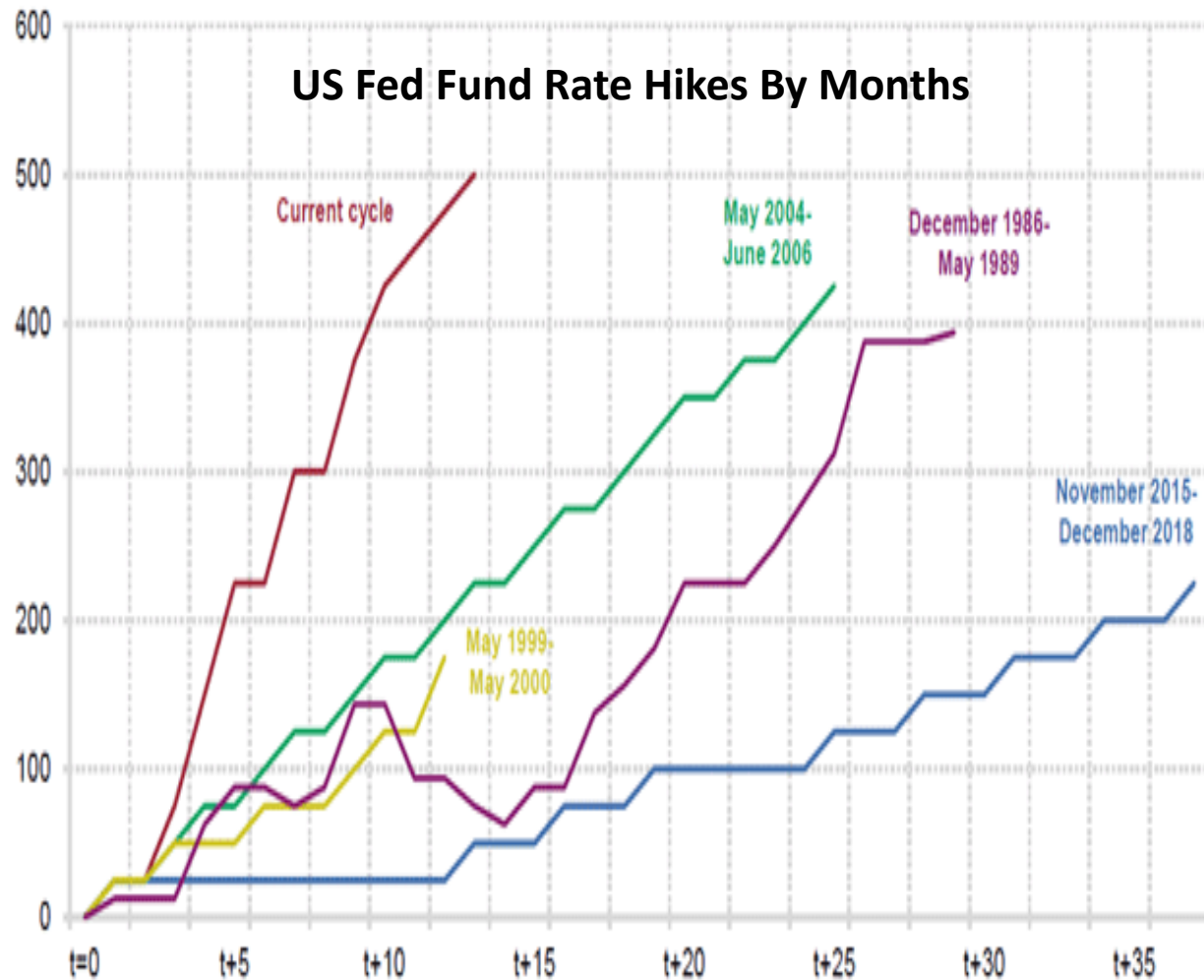


World Central Banks to Break the Back of Inflation! The need for GREATER Supply



Fastest US Rate Hike Cycle in History!

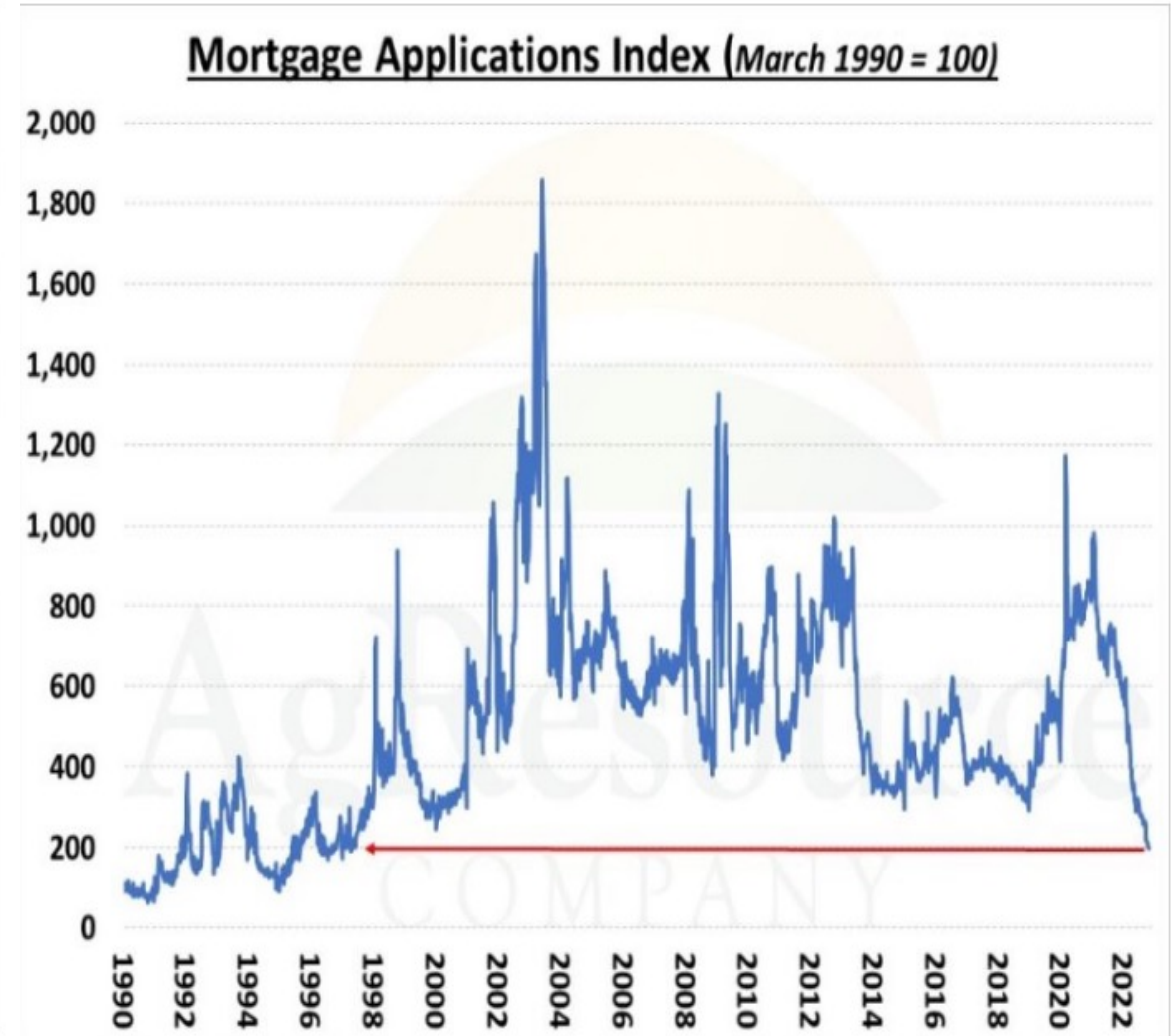
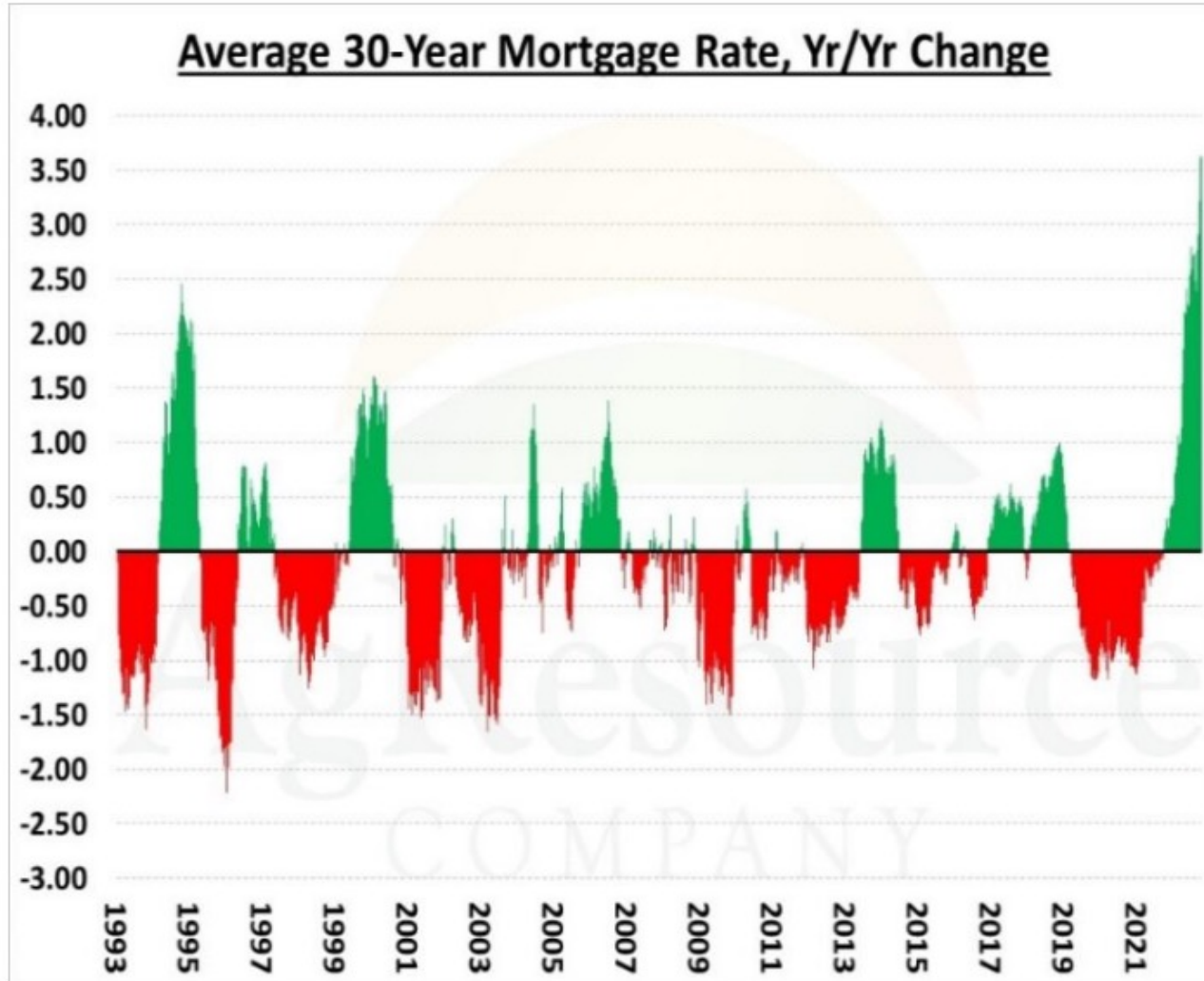
Bank Stress Abounds; A Soft Landing Ahead



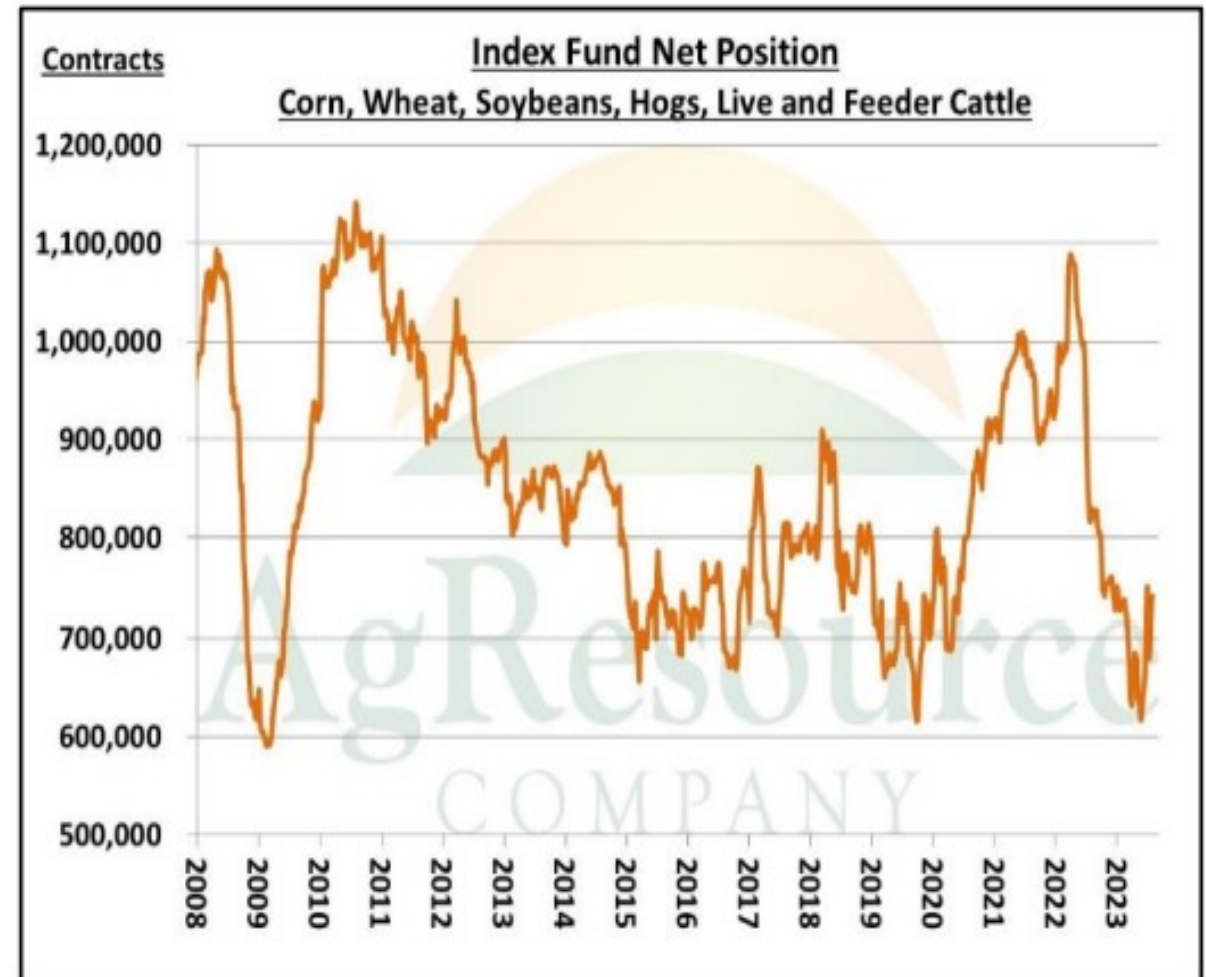
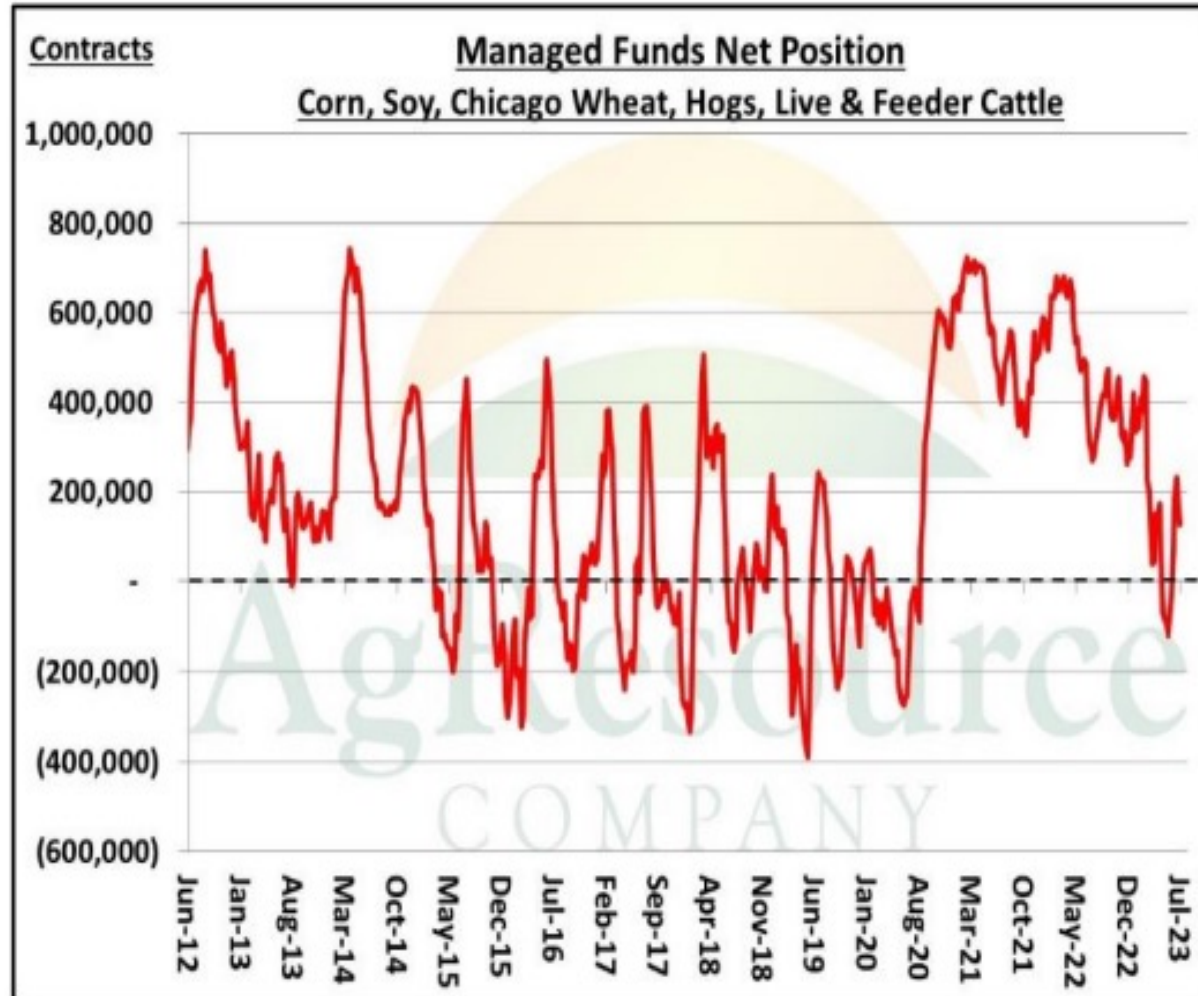
| First Hike | Last Hike | Result |
|----------------|----------------|--------------|
| October 1950 | May 1953 | Recession |
| October 1955 | August 1957 | Recession |
| September 1958 | September 1959 | Recession |
| December 1965 | September 1966 | Soft Landing |
| November 1967 | June 1969 | Recession |
| April 1972 | September 1973 | Recession |
| May 1977 | March 1980 | Recession |
| August 1980 | December 1980 | Recession |
| March 1983 | August 1984 | Soft Landing |
| January 1987 | May 1989 | Recession |
| February 1994 | February 1995 | Soft Landing |
| June 1999 | May 2000 | Recession |
| June 2004 | June 2006 | Recession |
| December 2015 | December 2018 | Recession |

Source: Federal Reserve, Rosenberg Research

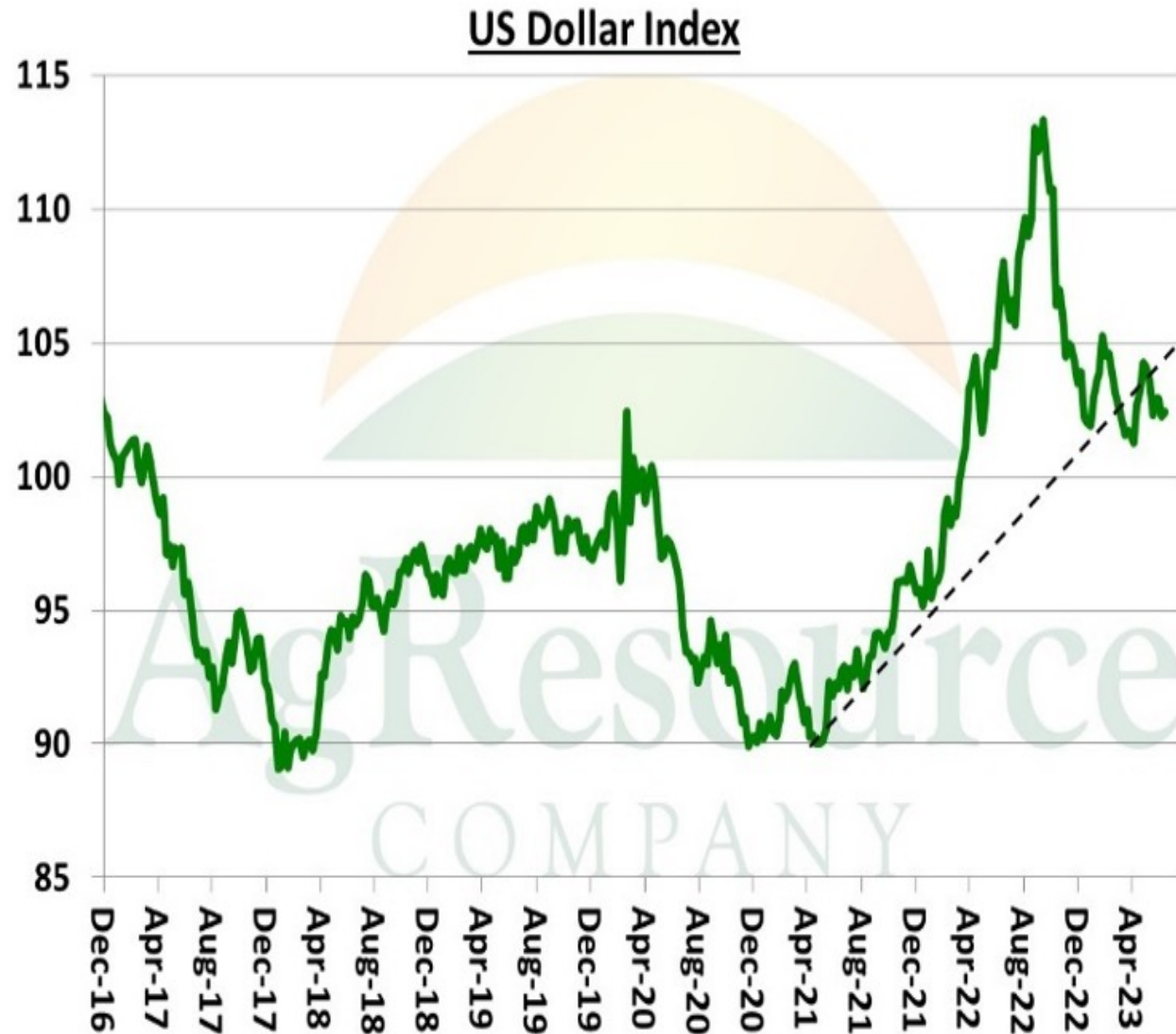
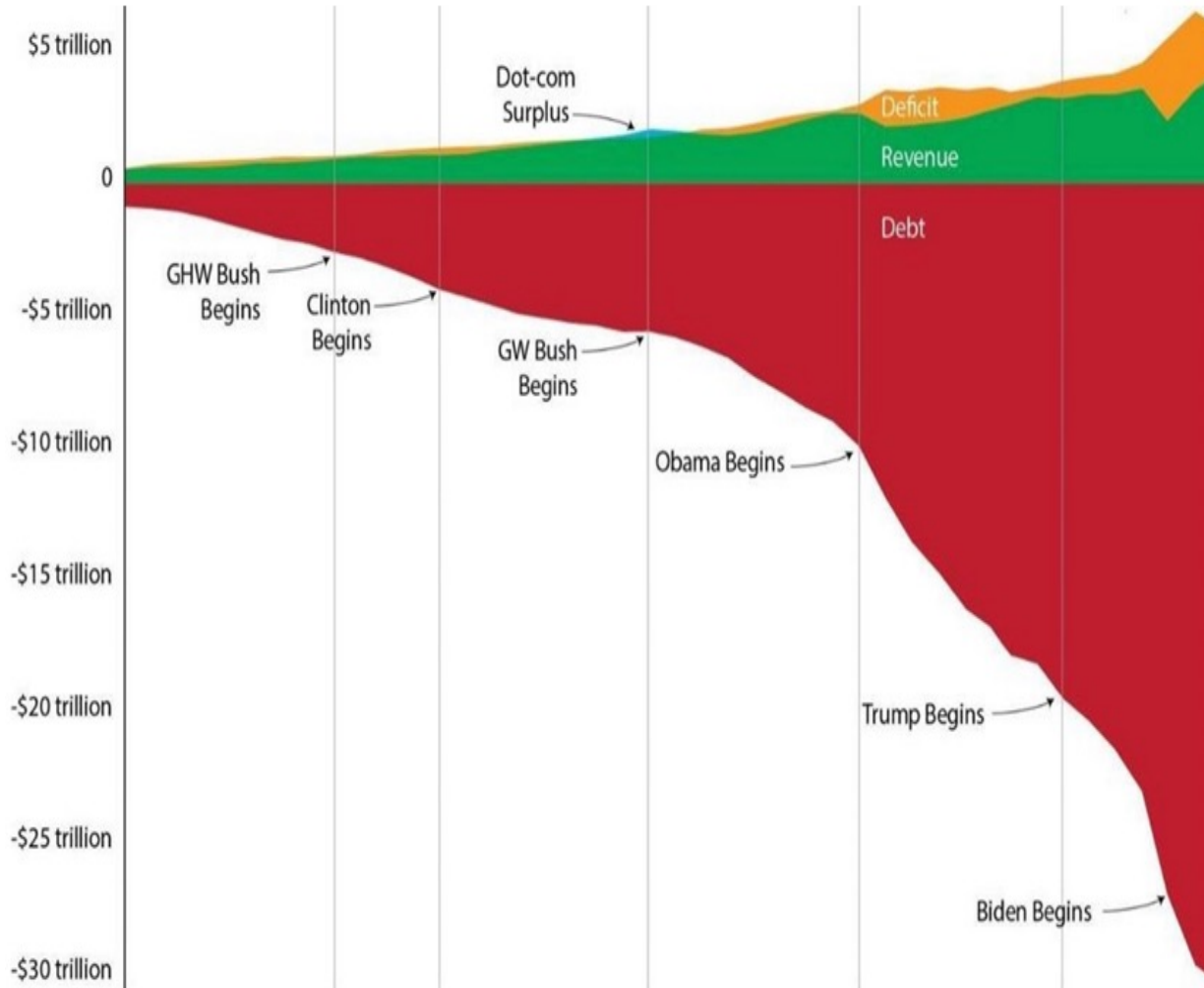
US Lending Rates Soar; Applications Plunge; 30 Year Mortgage Back to 6.75-7.25%



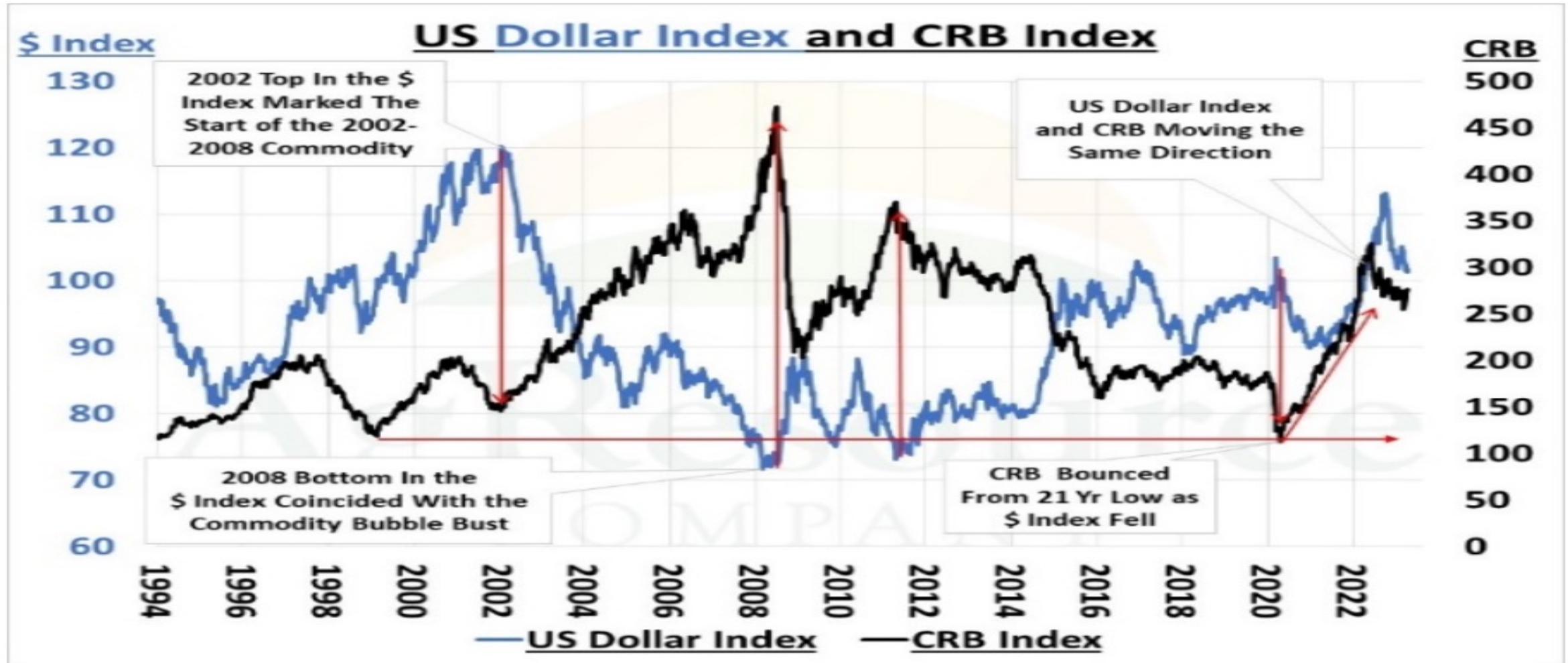
Money Leaving Ag Since July of 2022; Now Returning?



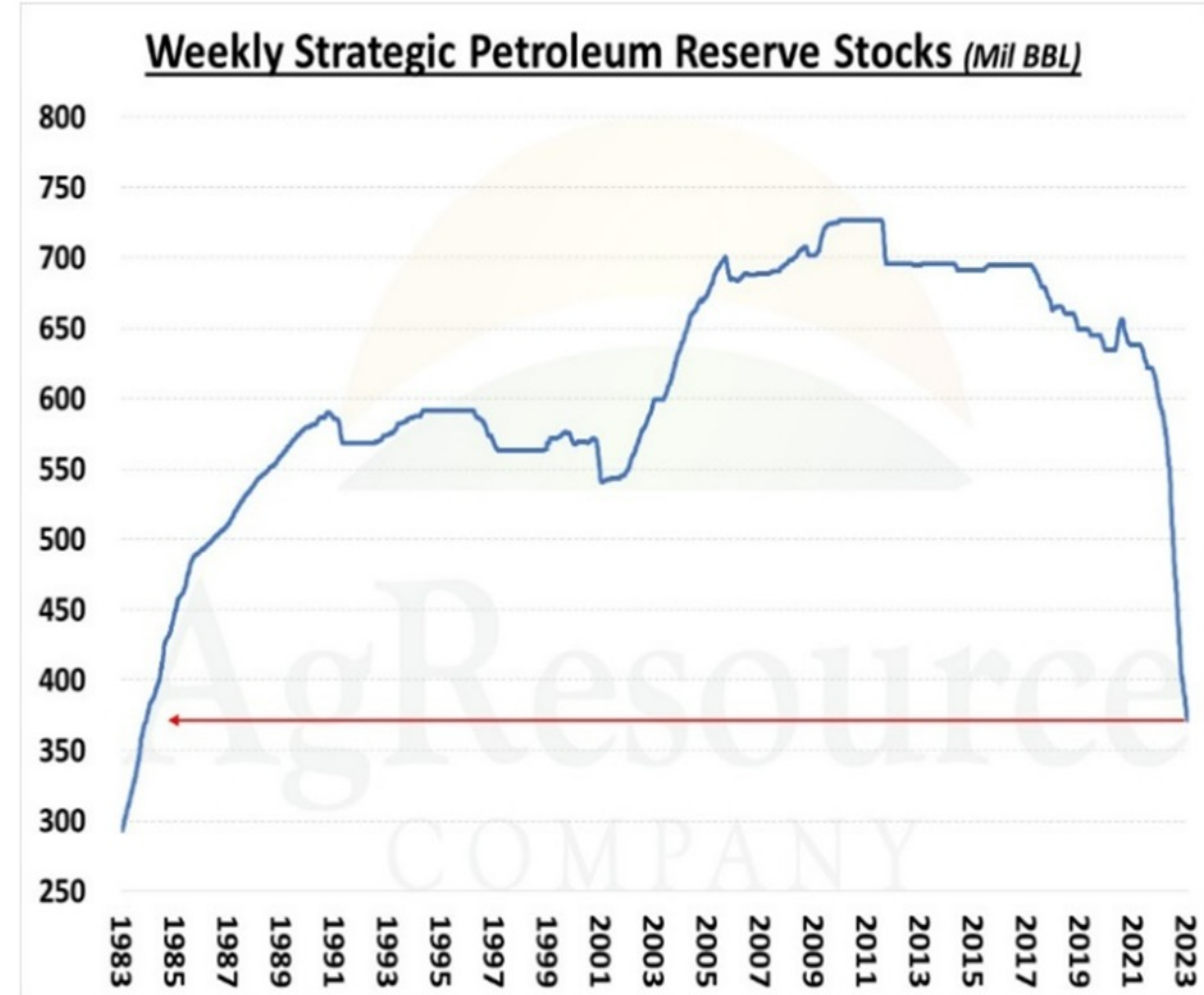
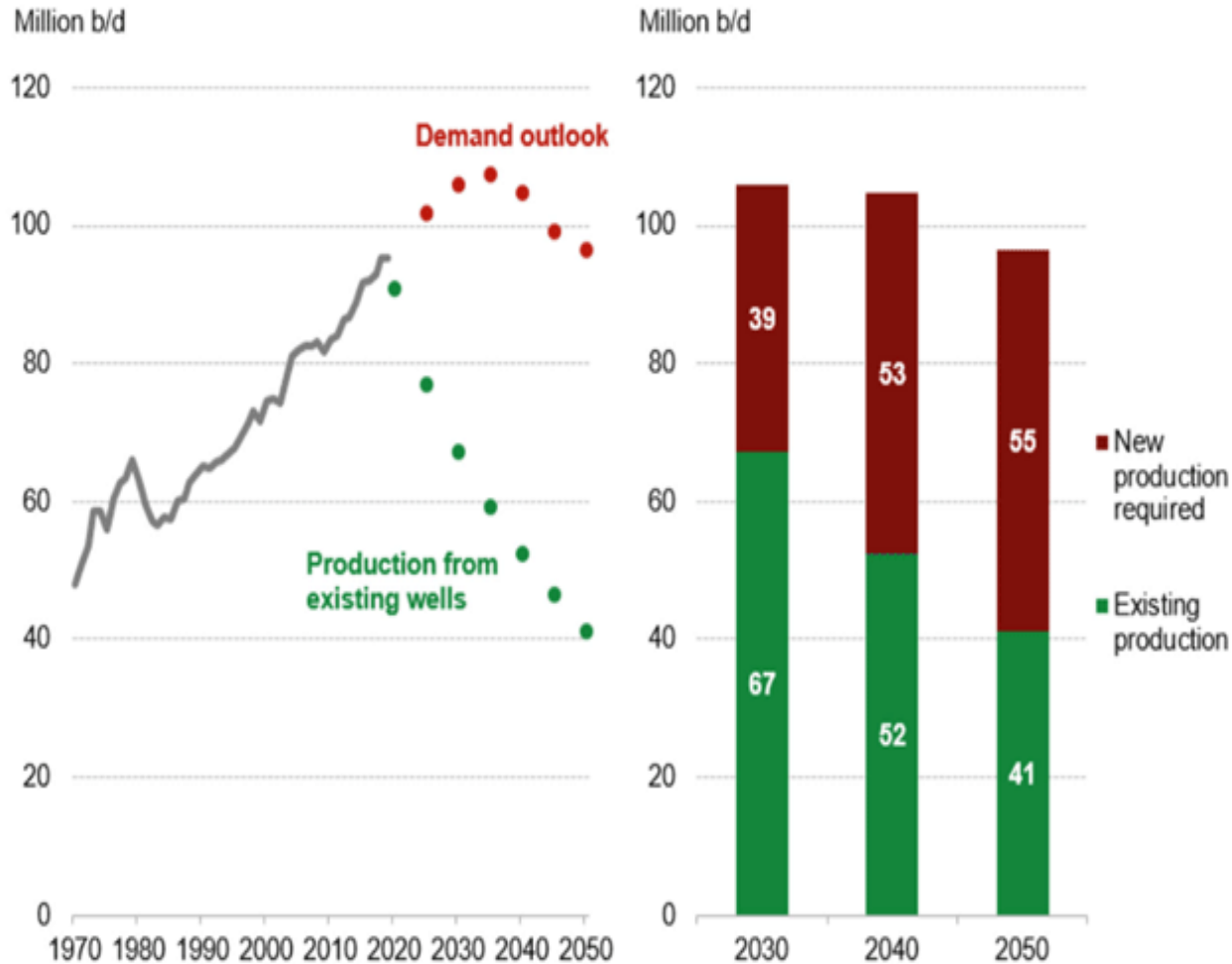
Can the US Dollar Withstand +\$32 Trillion of Gov't Debt in Q1 2024?



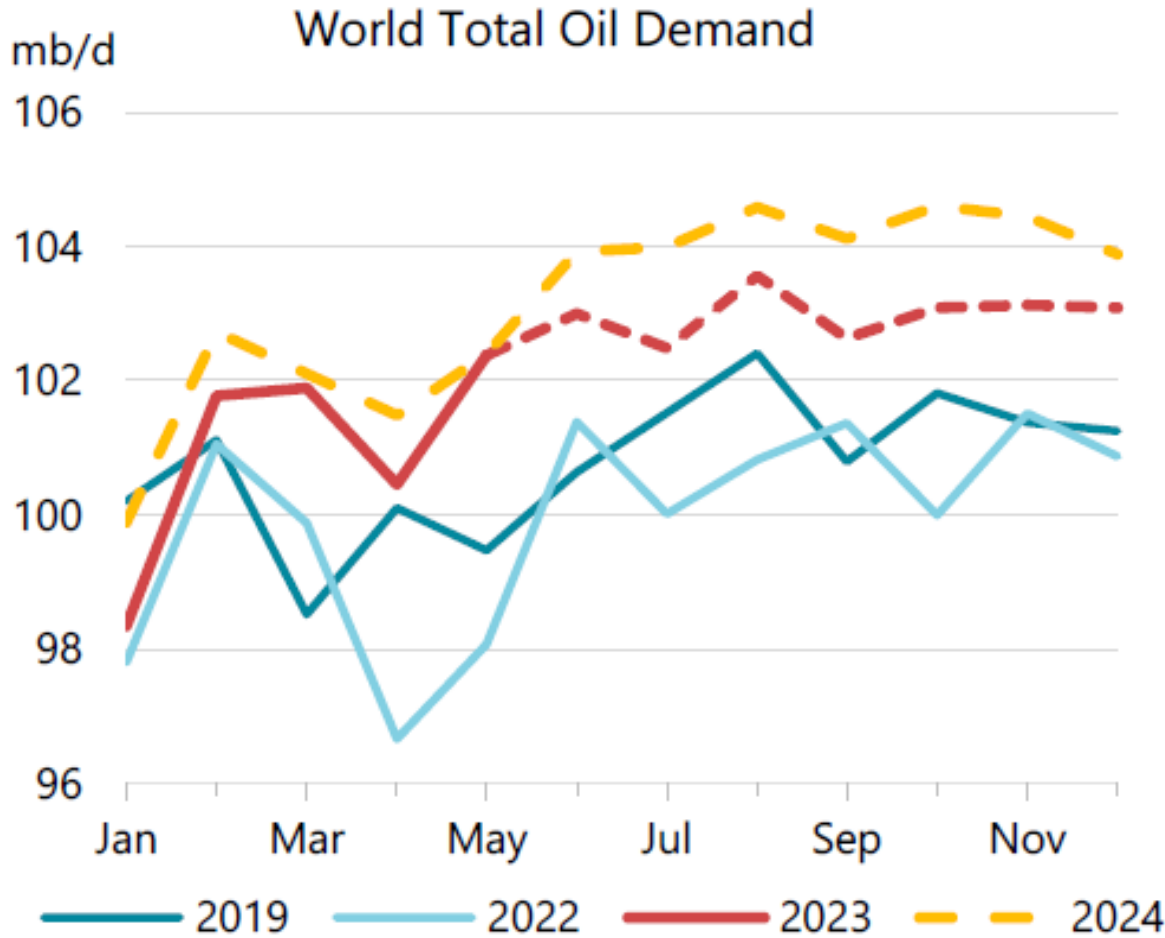
US Dollar Peak and Commodity Bottom by June; No place for Commodity Sales



Underinvestment in Petroleum; US Replace SPR Supplies in 2024 – Presidential Election Year?

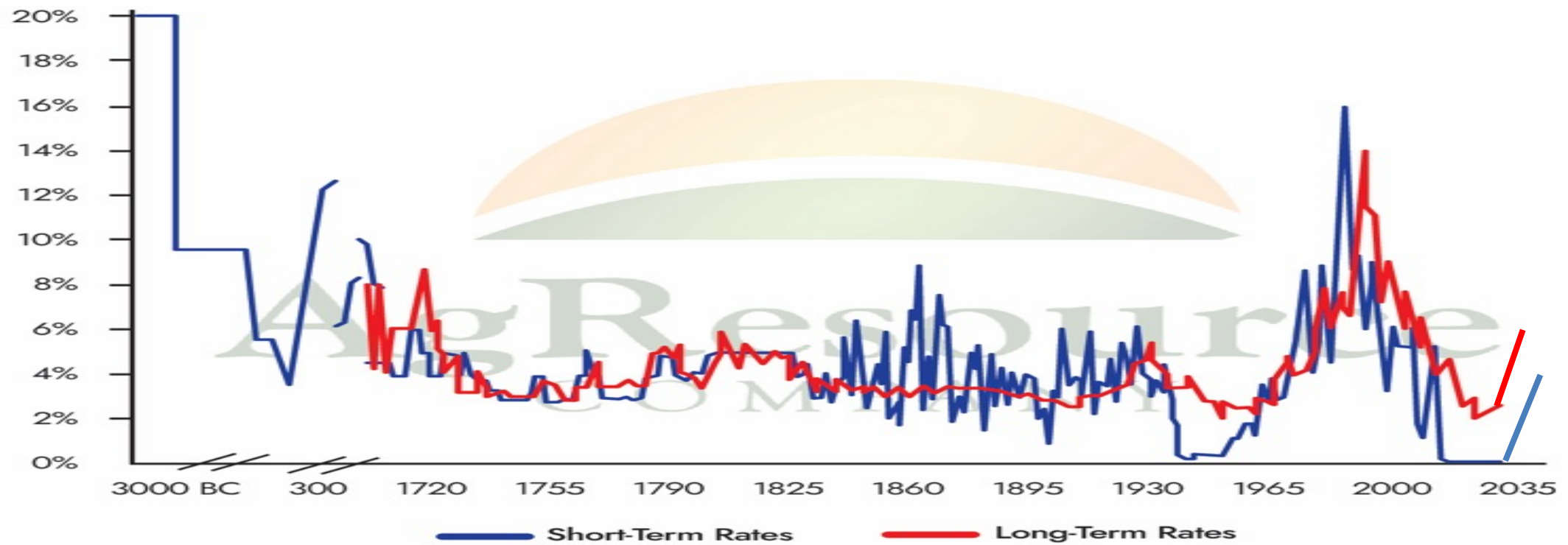


World Crude to \$90-95 by Q1 2024; World Crude Demand Outstrips Production



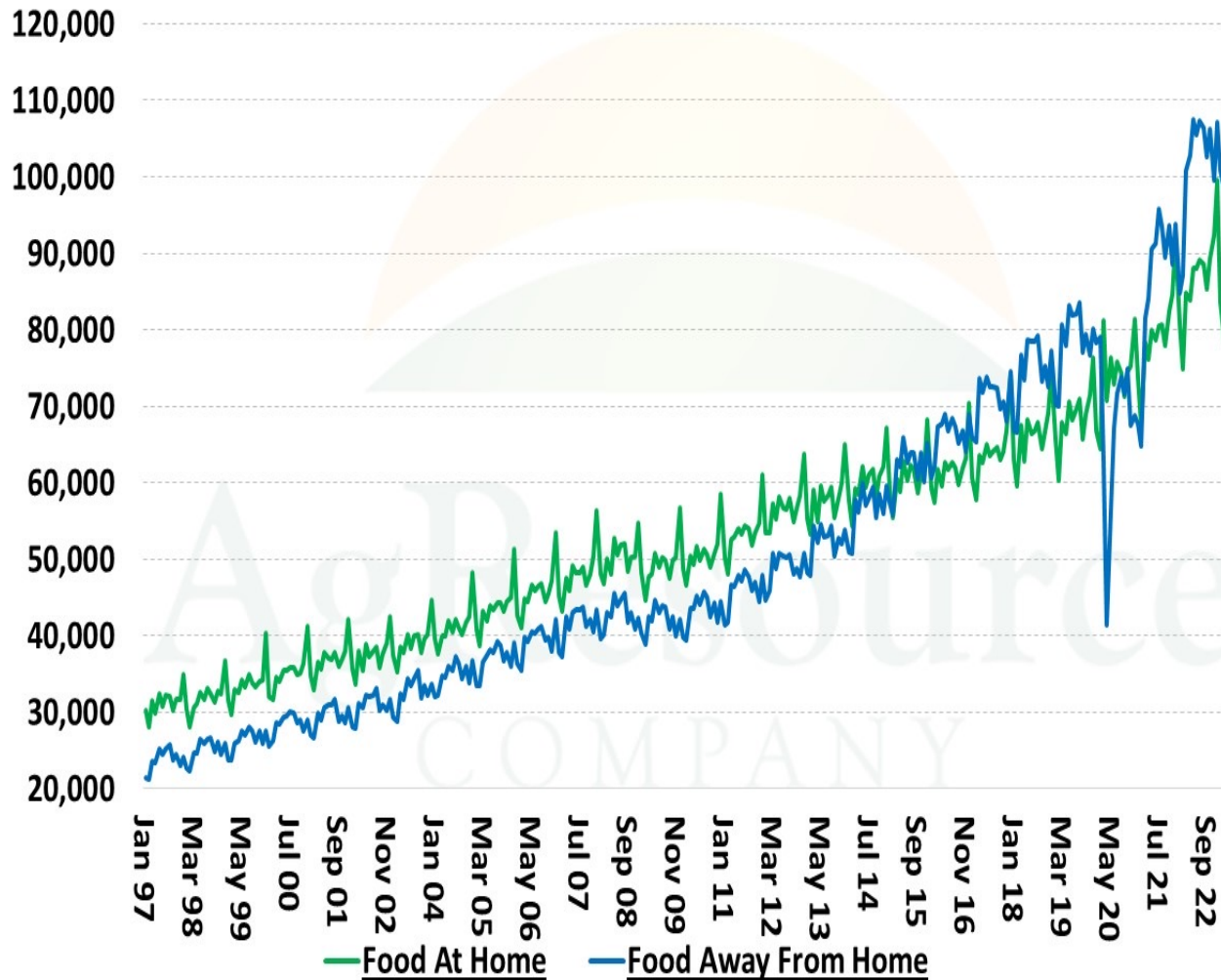
Historically; 0% or Negative Rate Money Does not Last for Long – 3,000 BC to Today! **The Great Reset**

Average World Bank Lending Rates

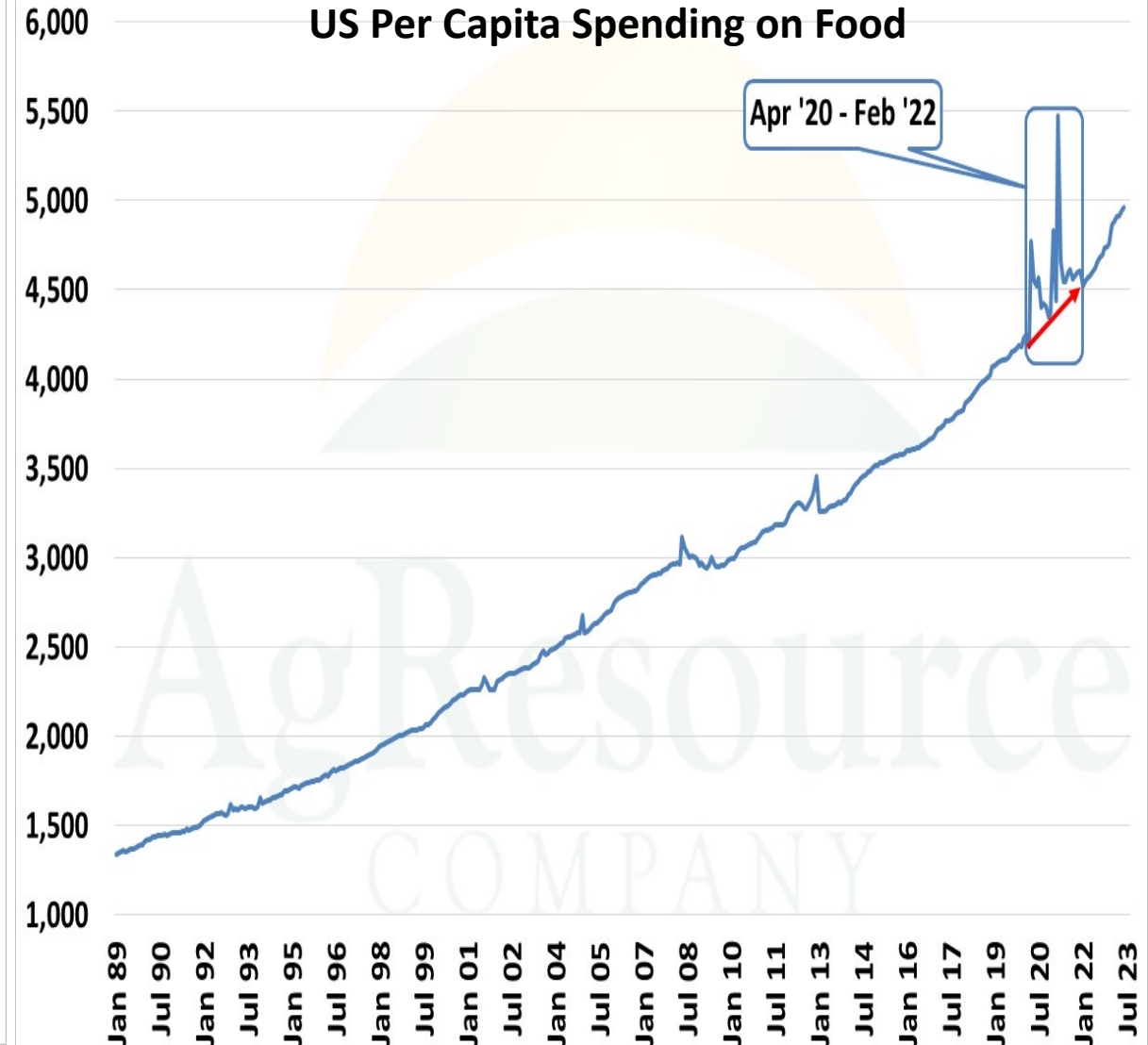


US Food Expenditure (Nominal, Mil \$) /Per capita

US Food Expenditure (Nominal, Mil \$)



US Per Capita Spending on Food



The World Food Table; Food Prices Stay Elevated for Consumers into 2024

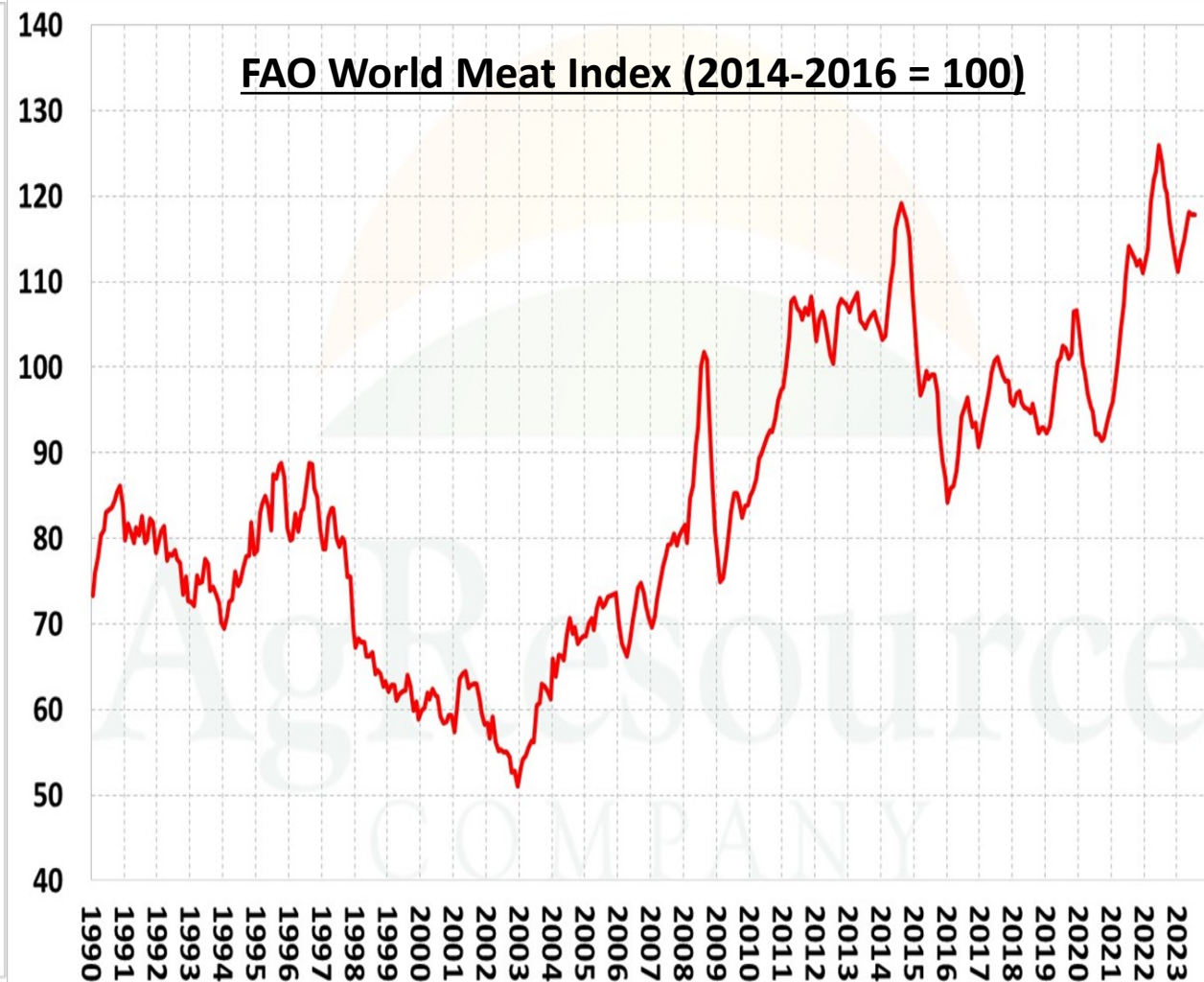


FAO World Food Price Index; A bottom is Forming with world Food Insecurity a growing problem

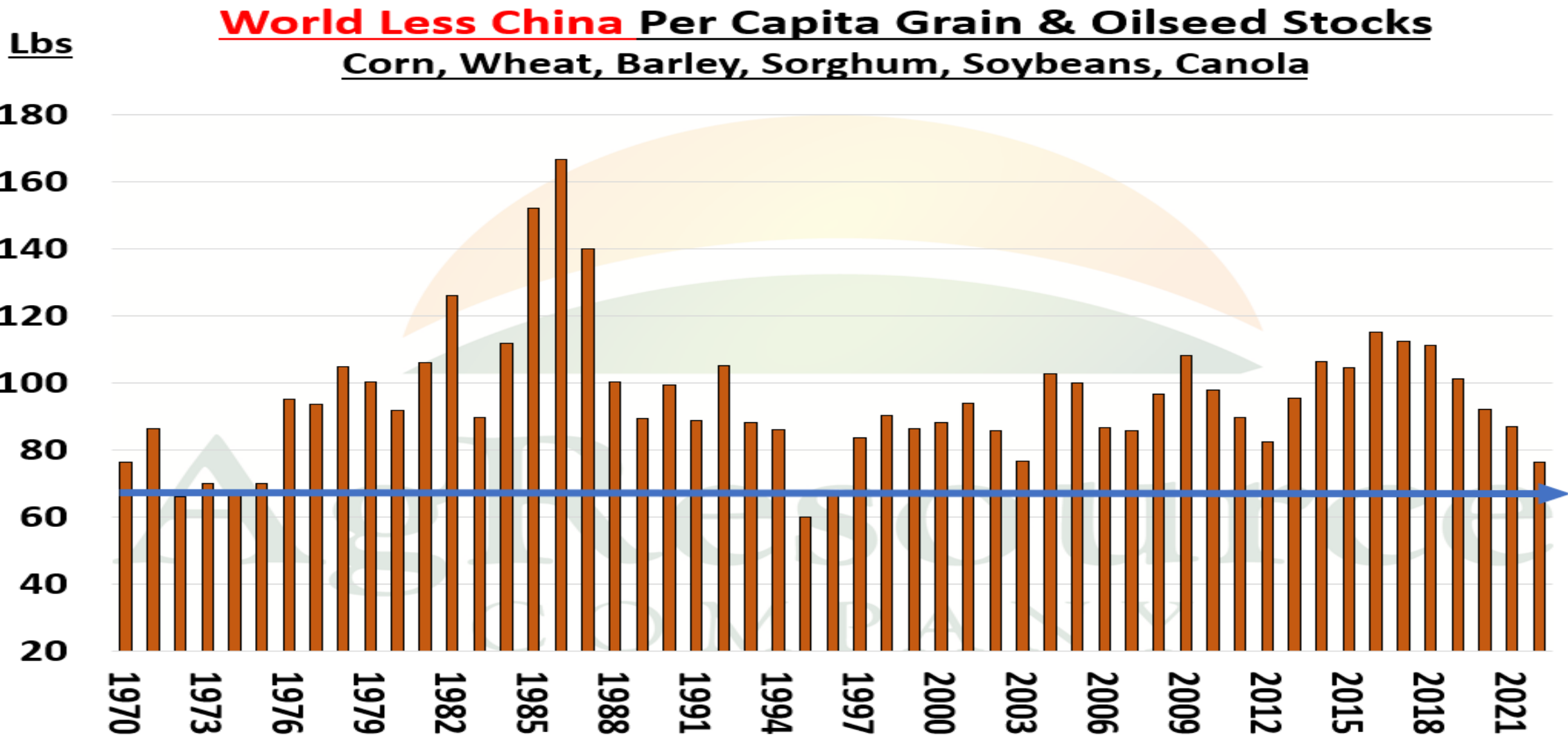
FAO World Food Price Index (2014-2016 = 100)



FAO World Meat Index (2014-2016 = 100)

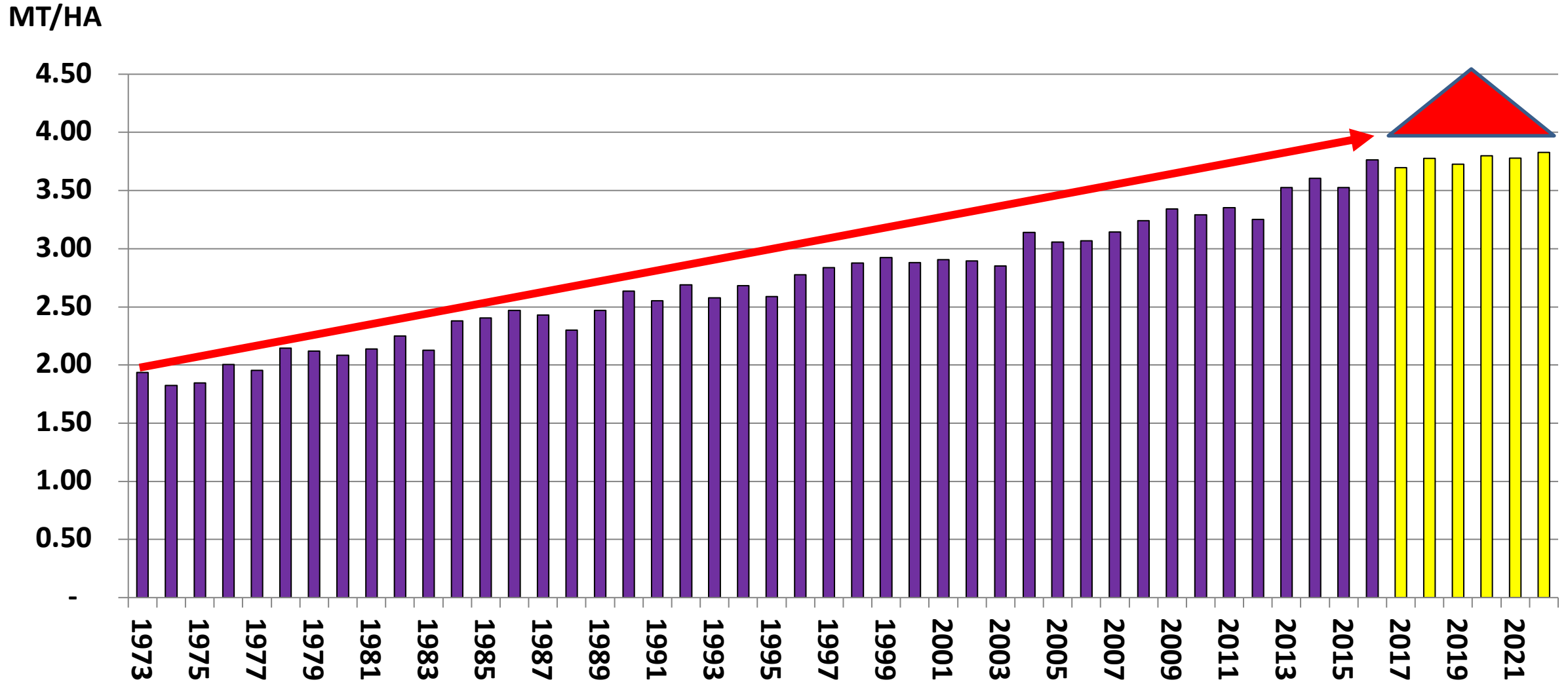


On the Doorstep of a World Food Crisis in 2022



Global Coarse Grain, Wheat & Oilseed Yields Rise

Corn, Wheat, Barley, Sorghum, Soy, Canola Combined



Climate Variability



World Ocean Temperatures Record Warm on August 11th; What are the Impacts on Crops?

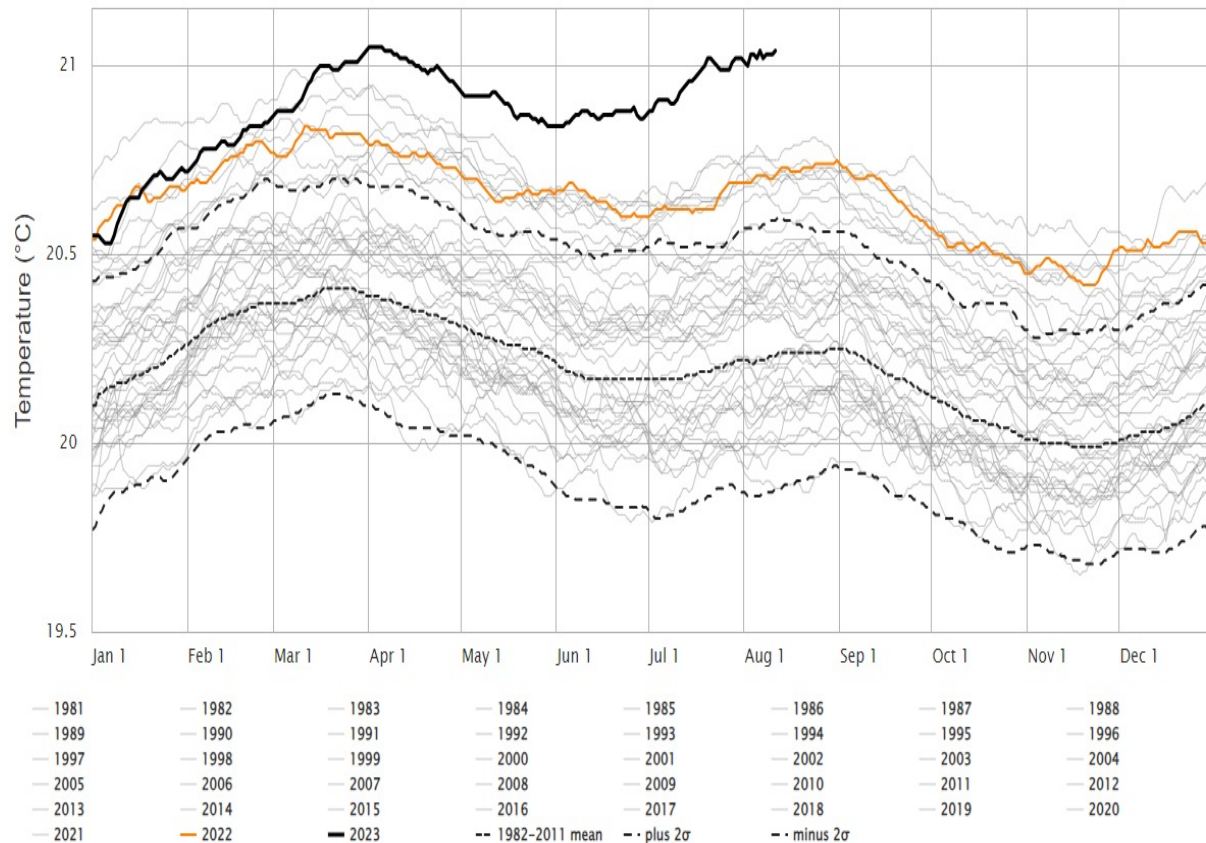
Choose Area: °C/°F

World (60S-60N)

SST World (60S-60N)

Export Chart

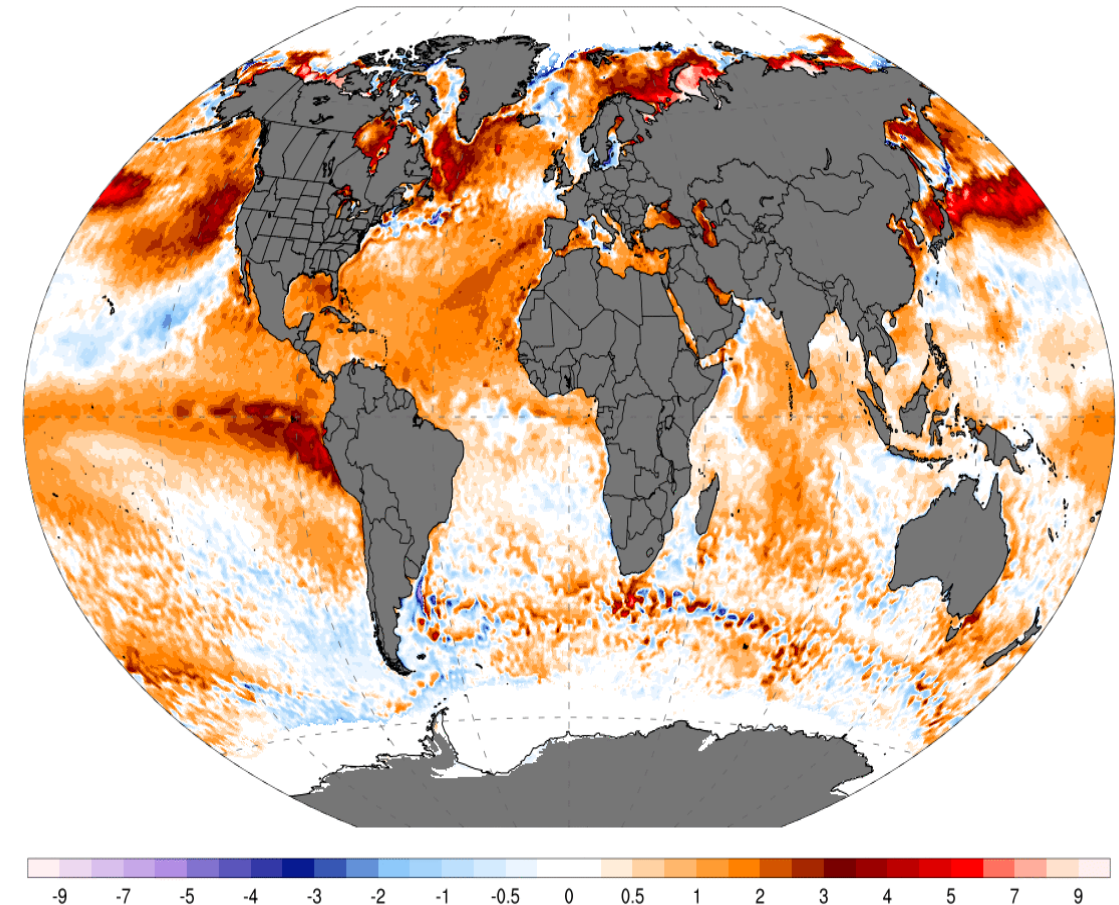
NOAA OISST V2.1 | ClimateReanalyzer.org, Climate Change Institute, University of Maine



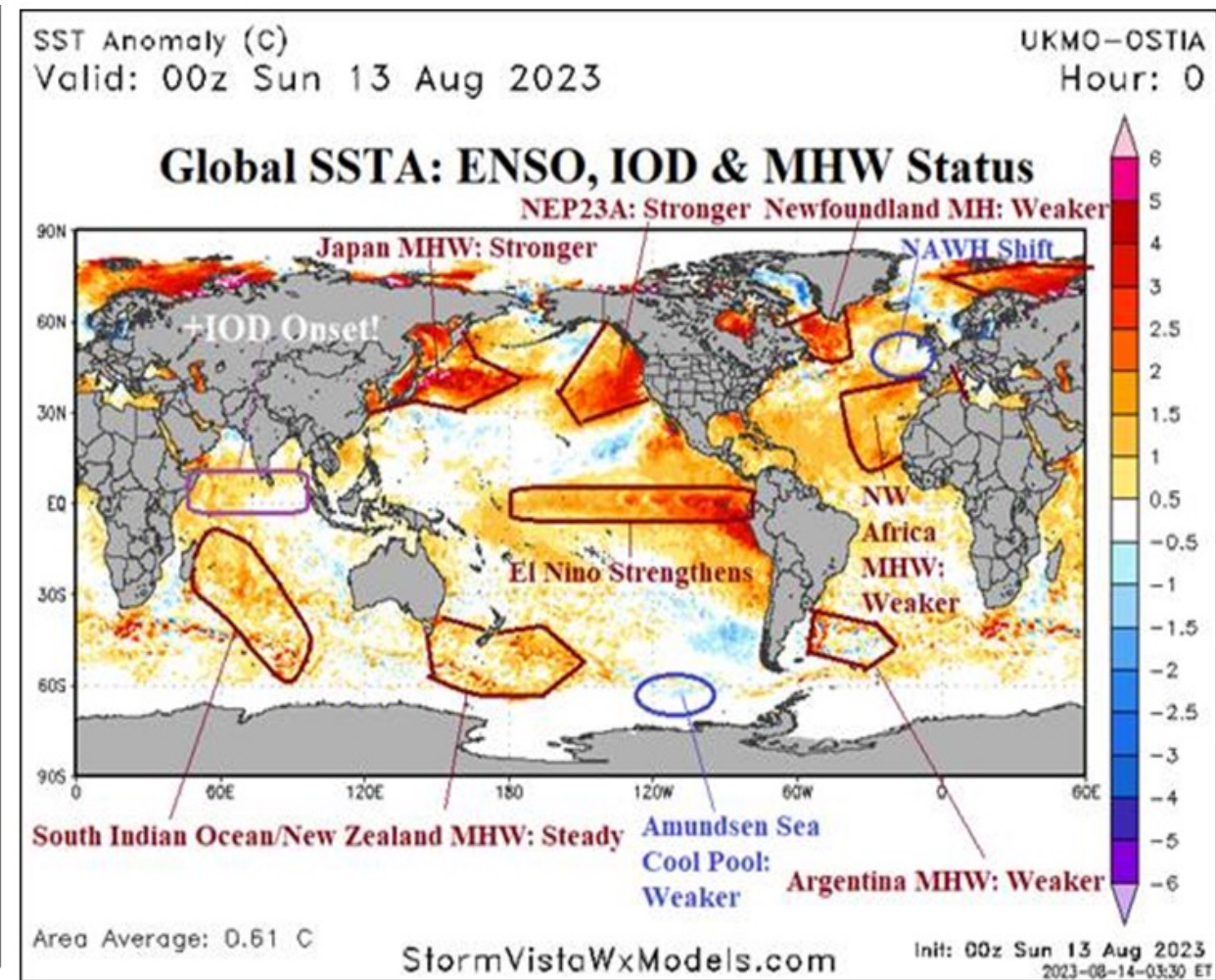
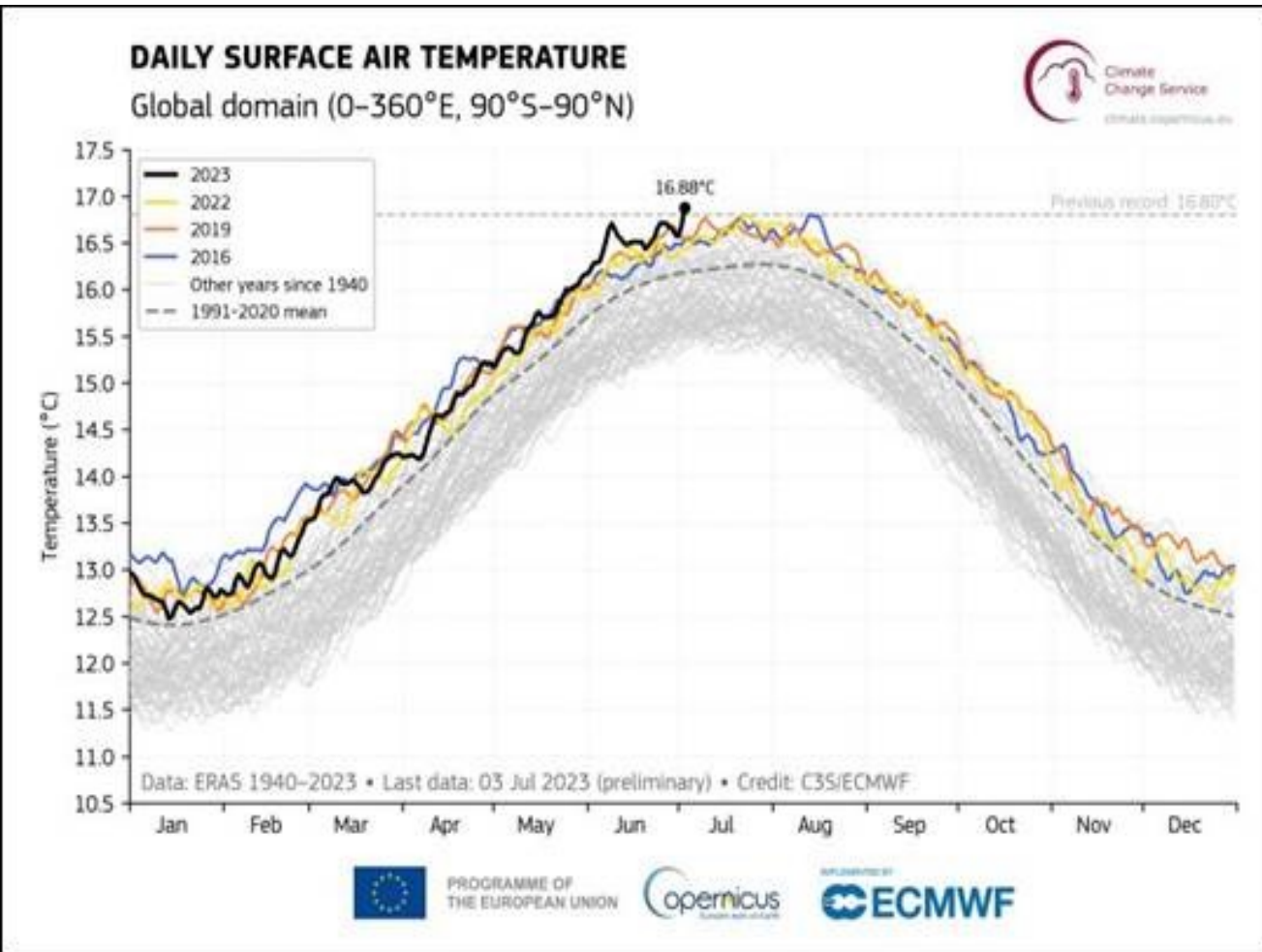
[Click Map to Change View](#)

OISST SST Anomaly (°C) [1971-2000 baseline]
1-day Avg | Fri, Aug 11, 2023

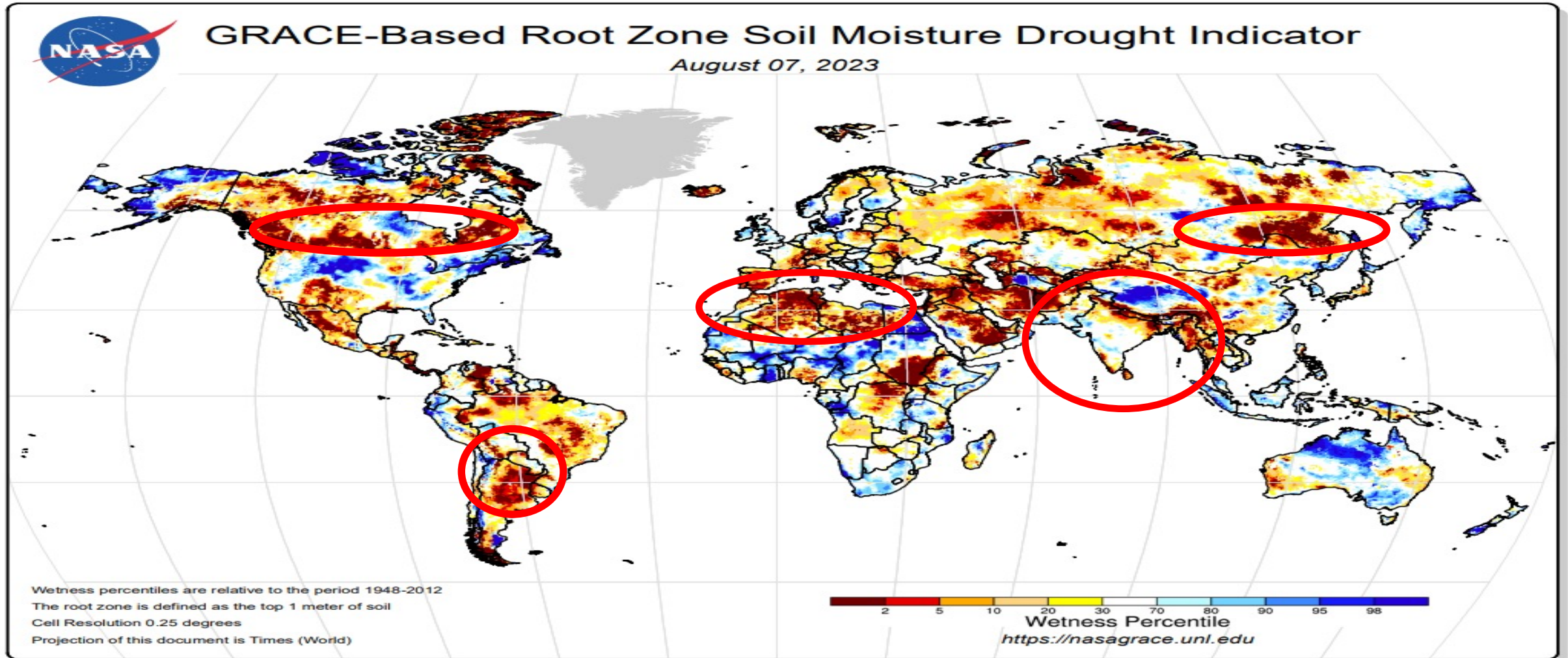
[ClimateReanalyzer.org](#)
Climate Change Institute | University of Maine



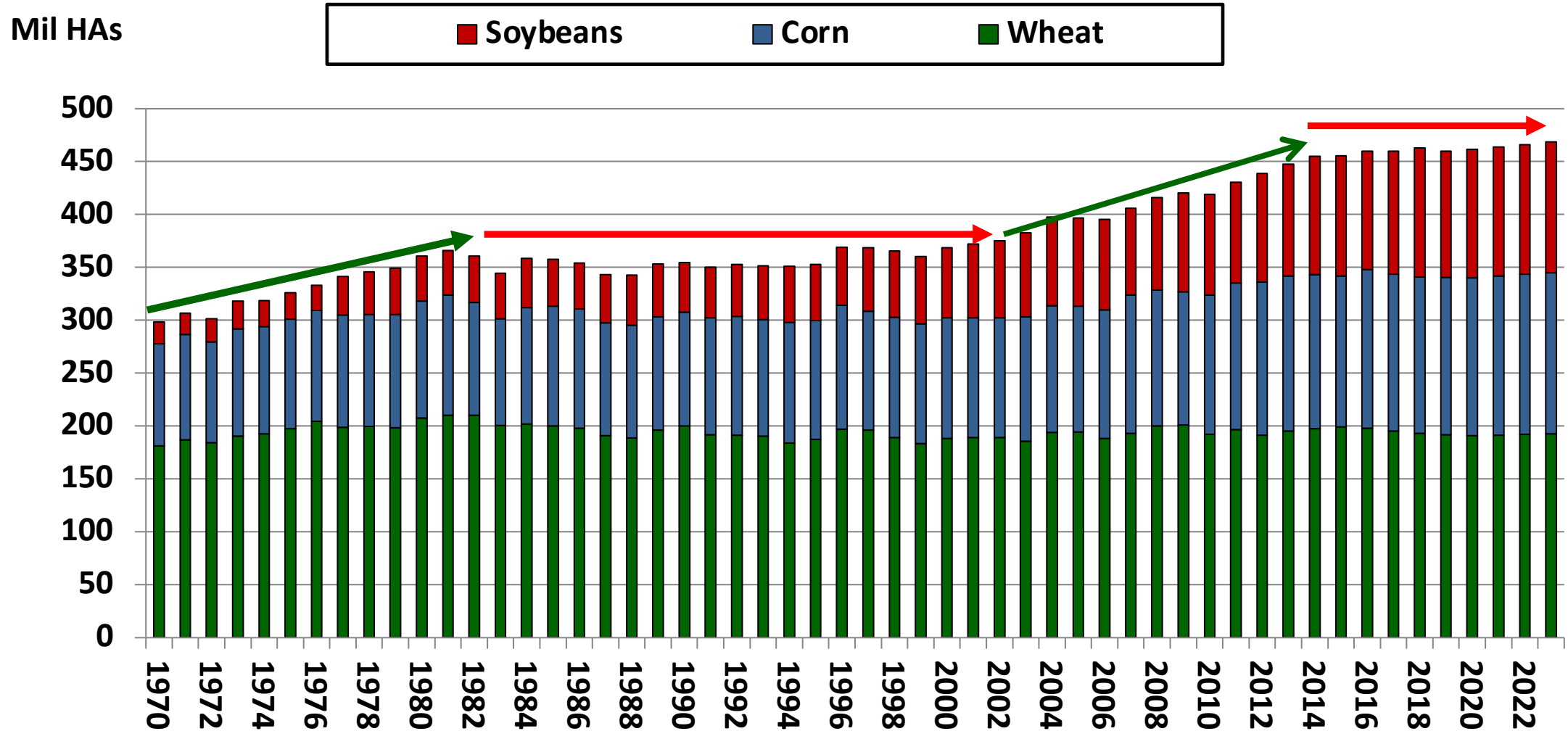
Marine Heat Waves; New Forecasting Weather Tool which Impact Global Weather



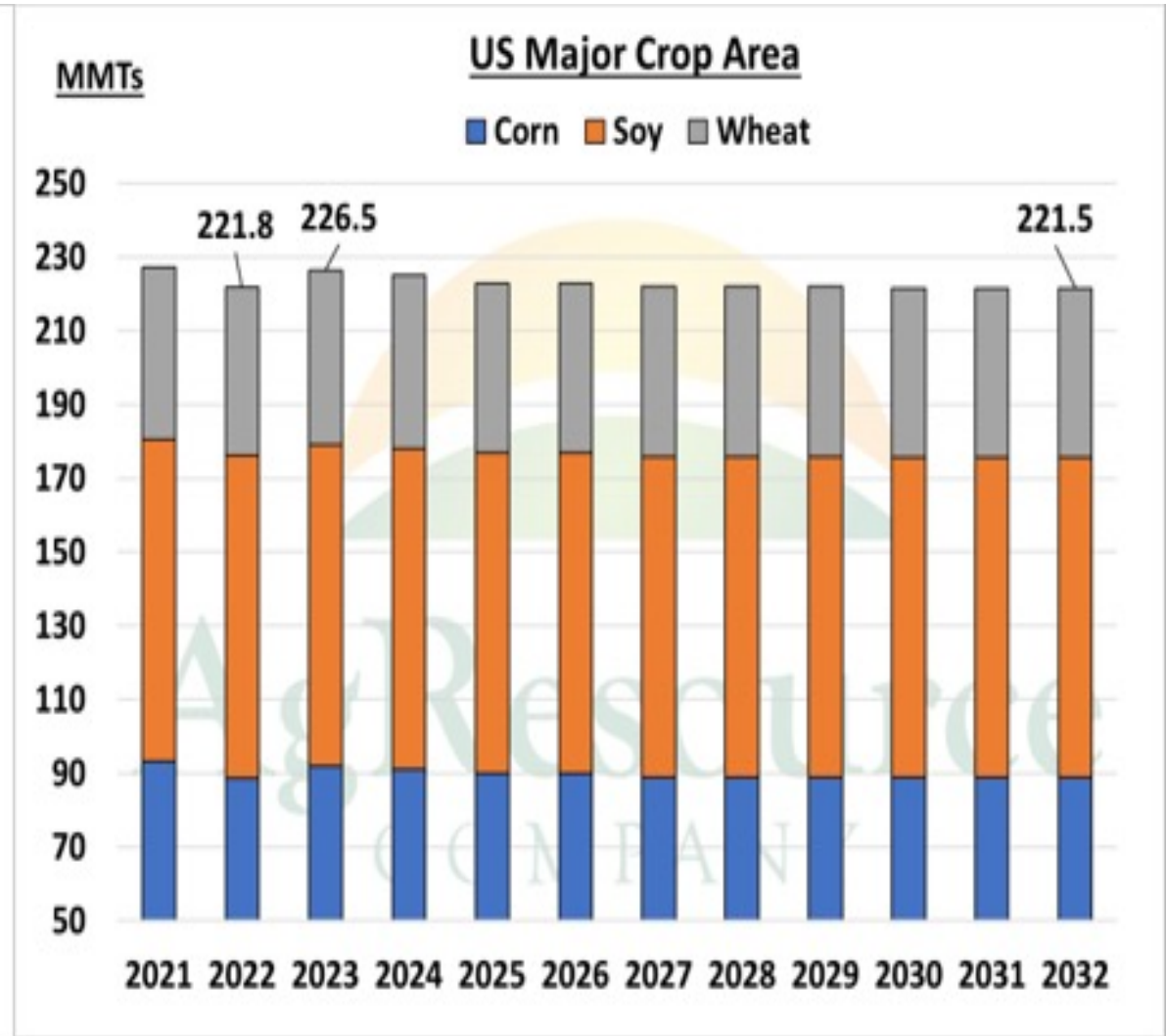
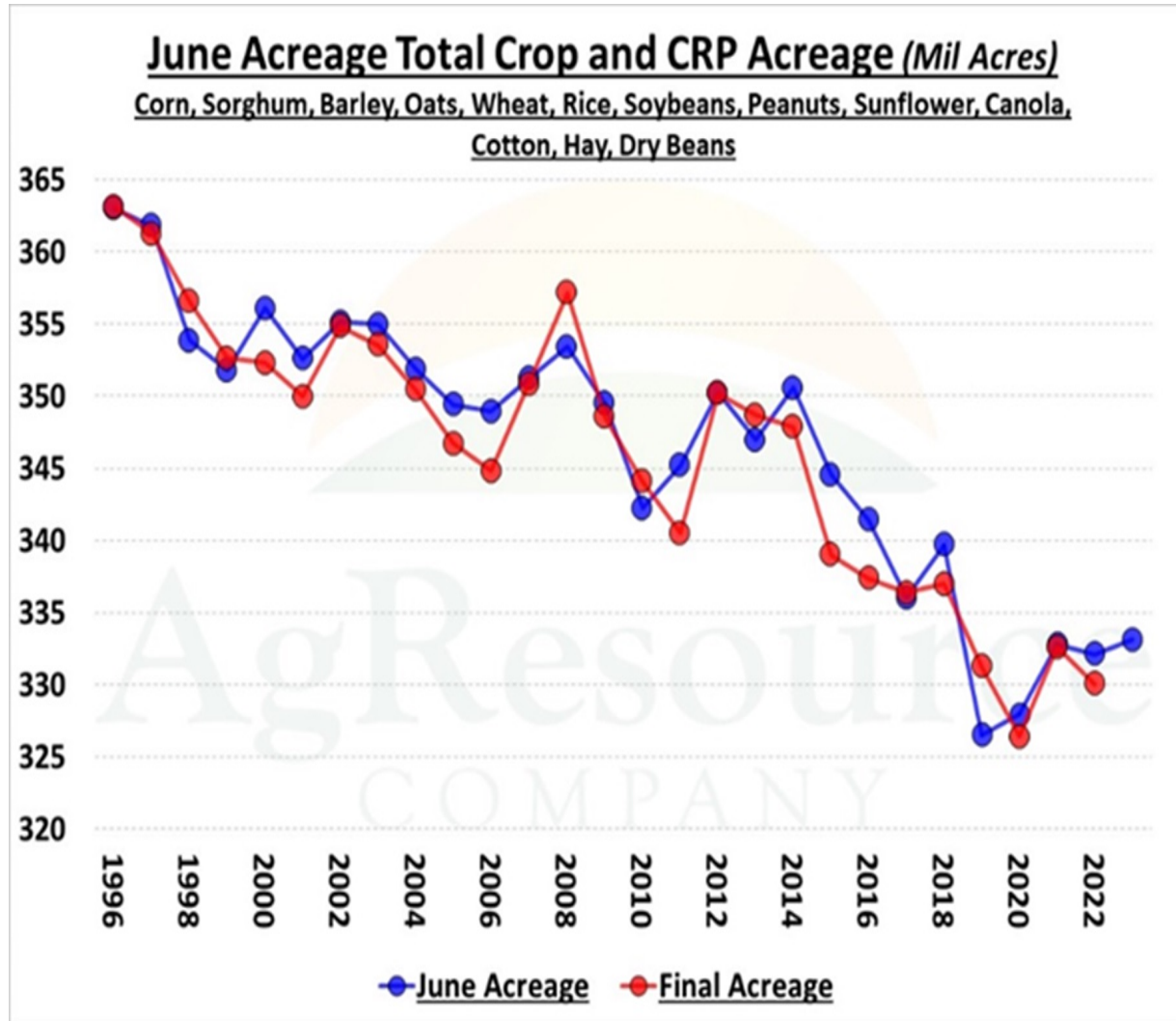
Global Dryness is already an Issue; 5 Key Grain Areas to Monitor into October



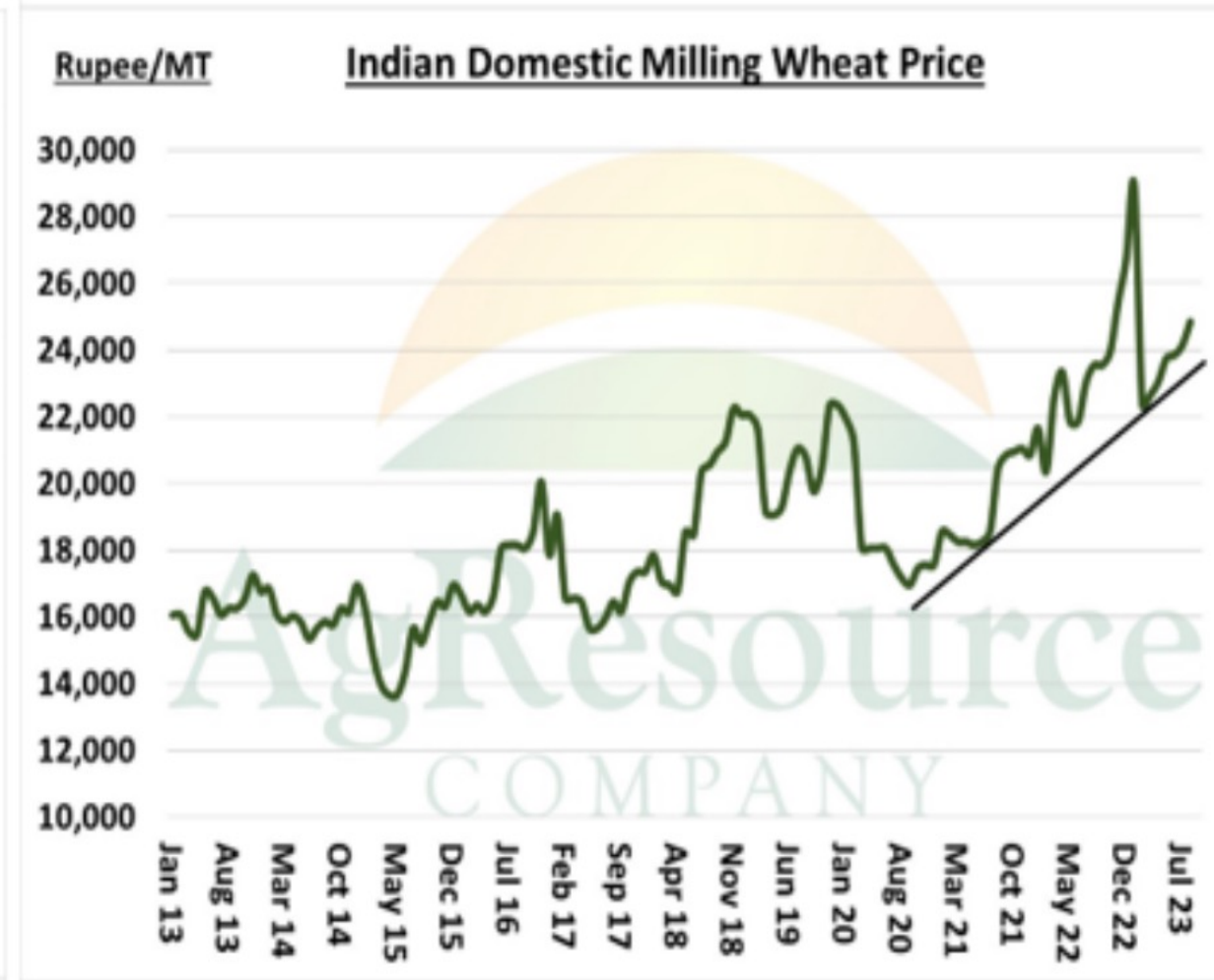
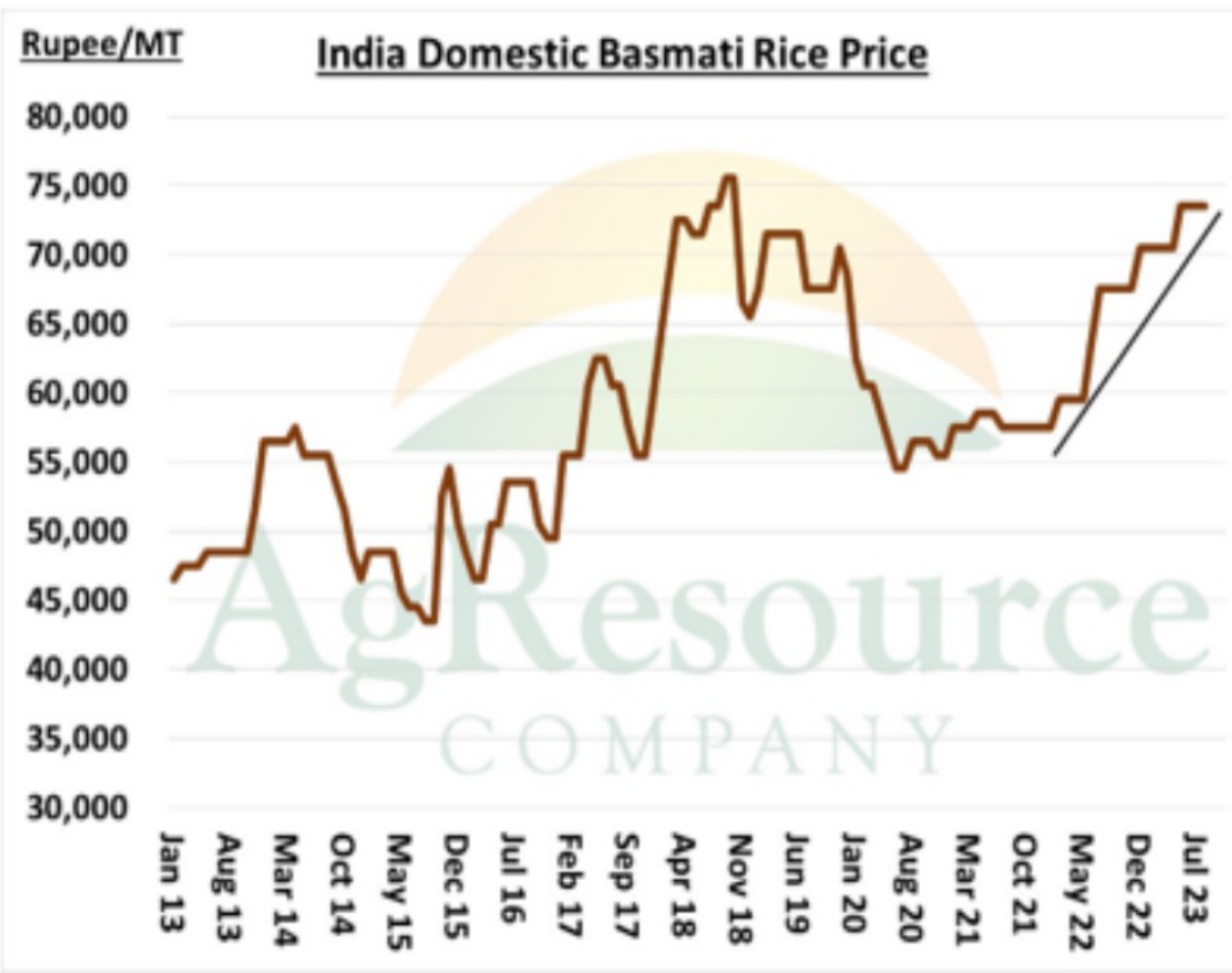
Global Major Grain Area Harvested Less China; 23-25 Mil Additional Acres Needed in Next 5 Years



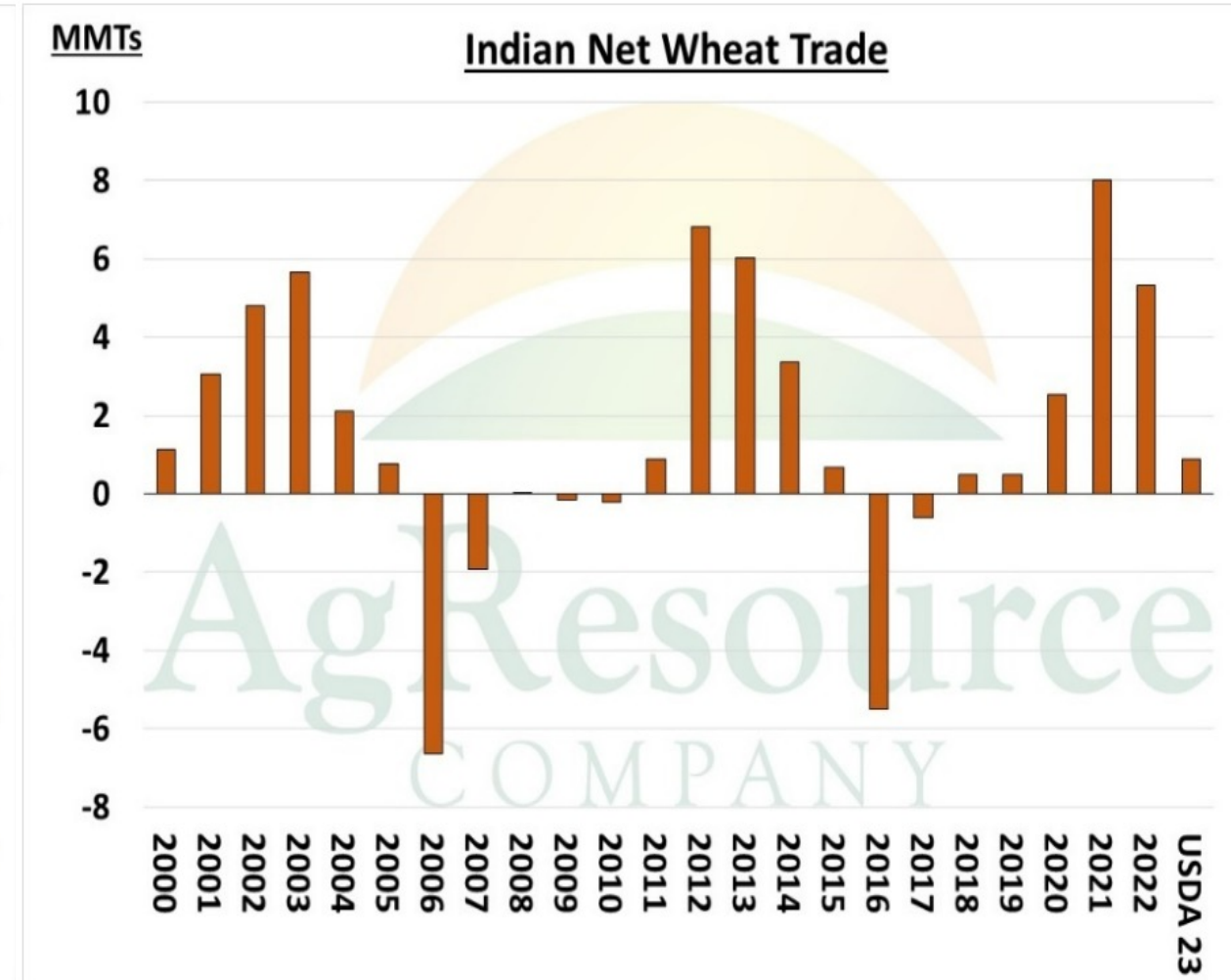
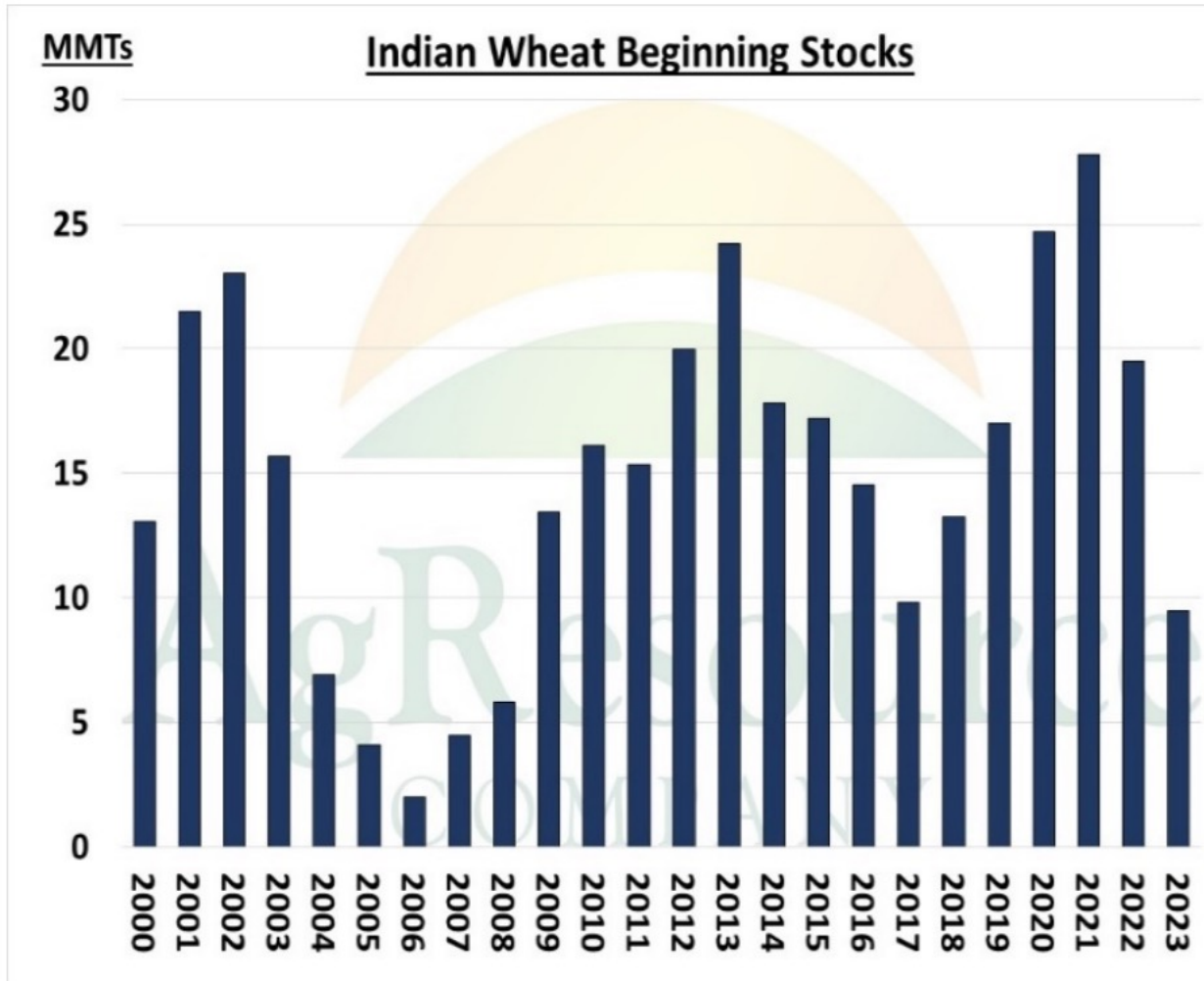
US Reaches Peak Farmland Minus Hay Acres which is at their lowest levels since 1907!



India Foodgrain Prices Rise and Pressure Gov't to Import Grains!



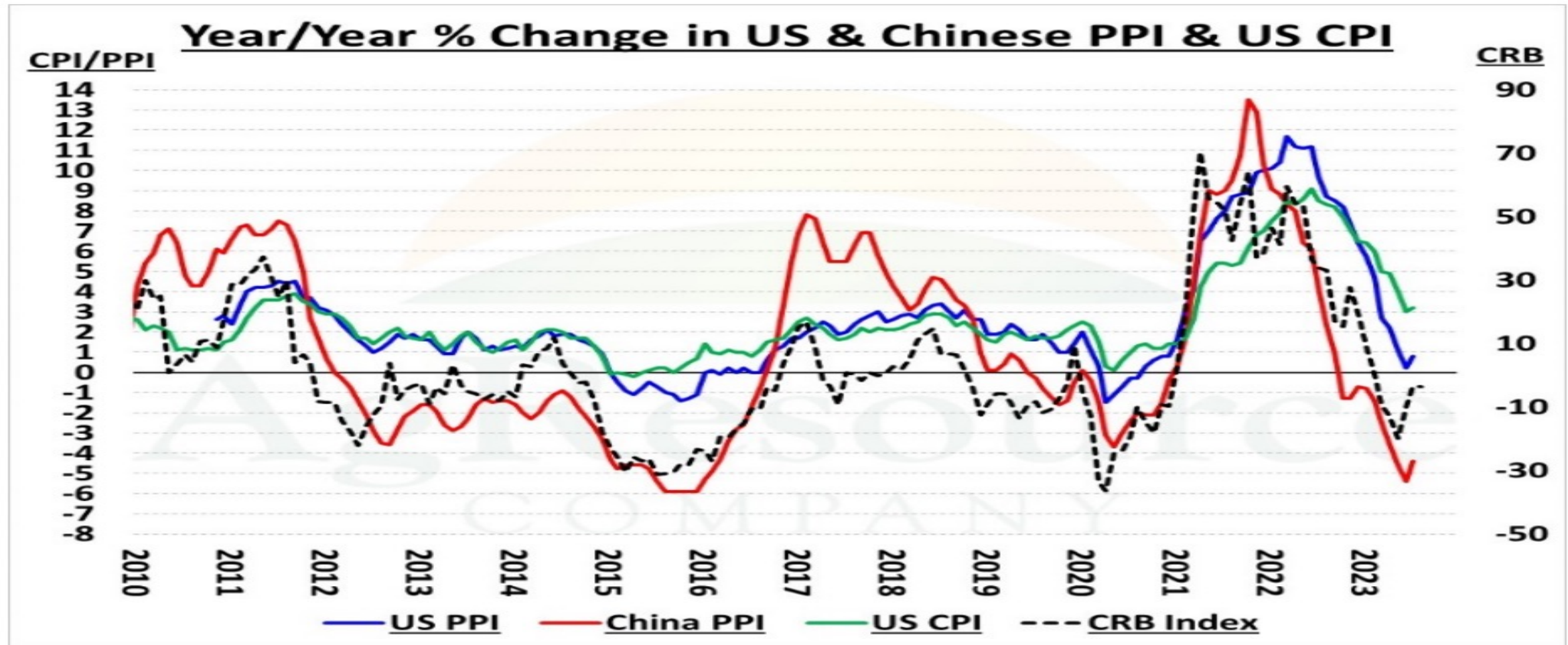
Indian Wheat Stocks at 17 Year Low! Crop Production Unable to Keep up with Consumption



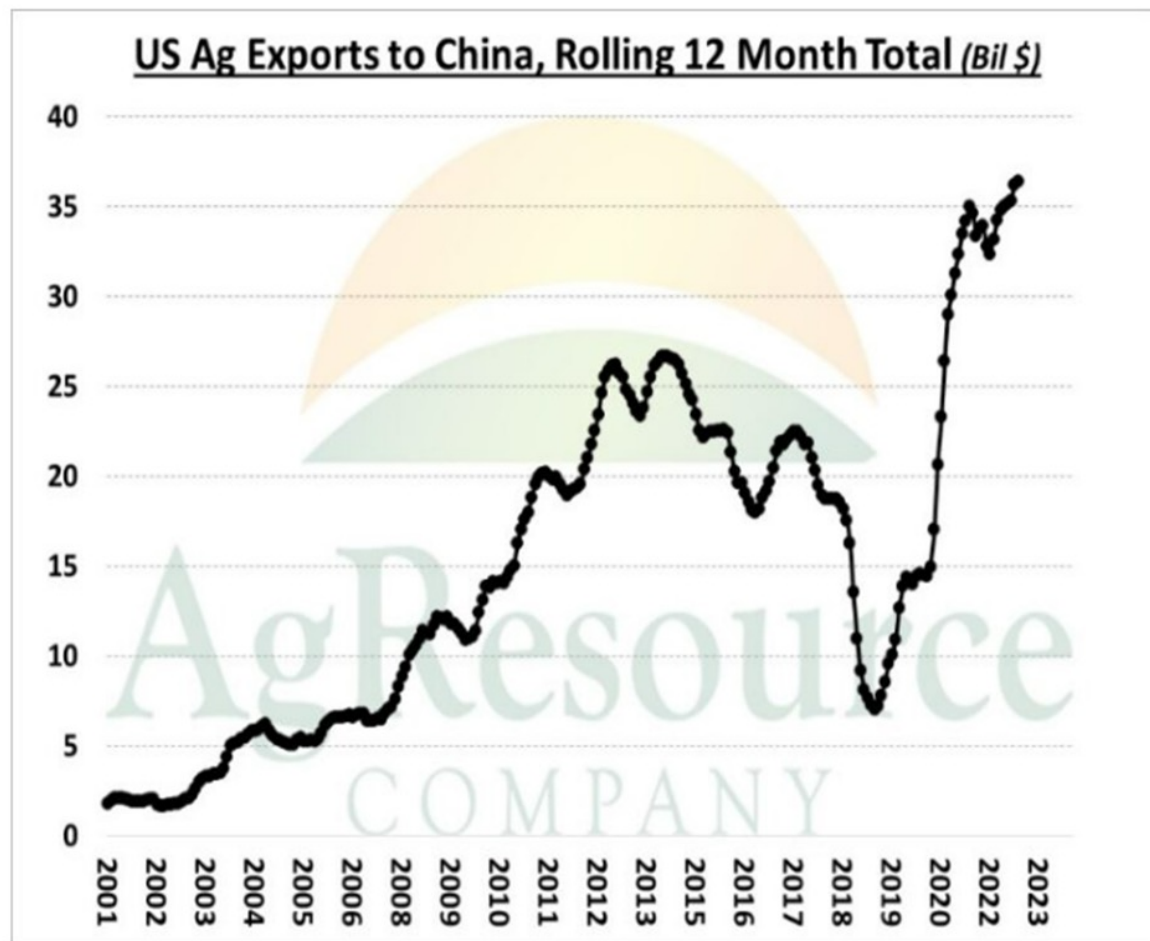
China's Economic/Political Impact on US Ag



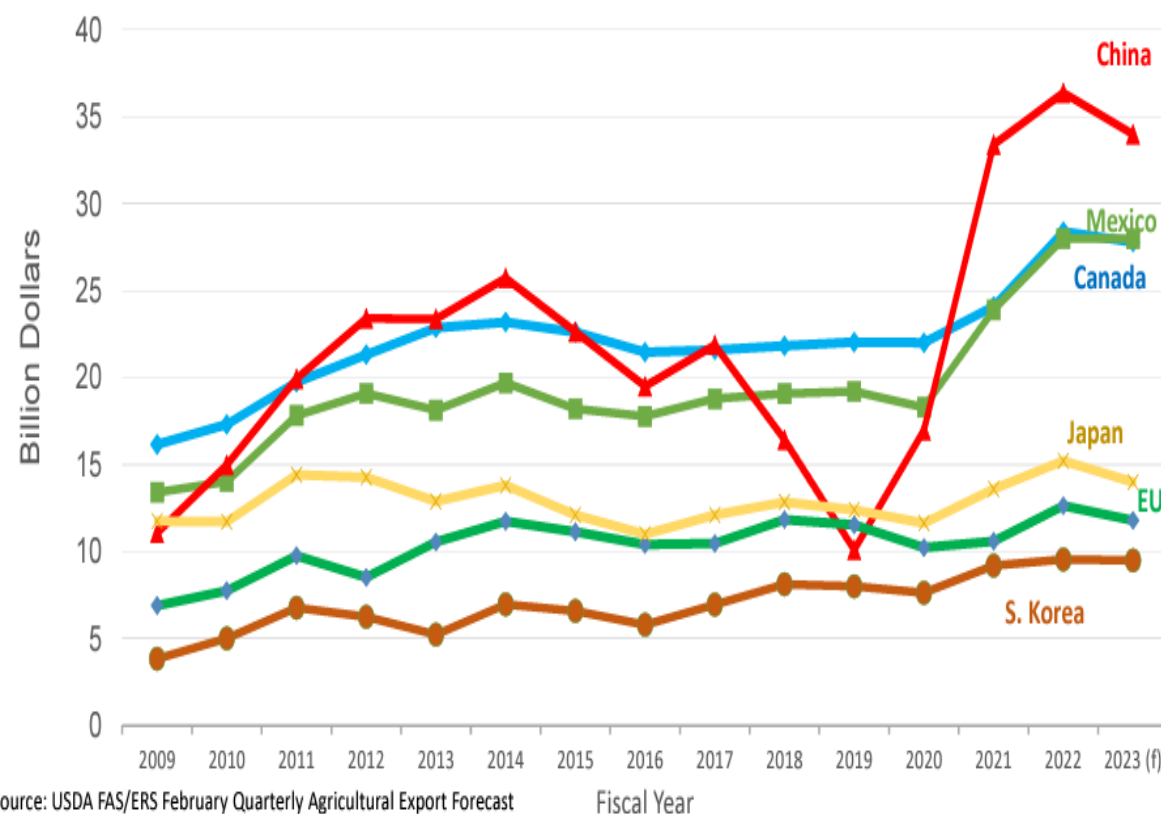
China Post Covid Growth Rate Disappointing at 5%; Producer Prices Drop 4% Year on Year!



China is a Customer that US Should Want to Keep; Political Risks Abound in the New Competition



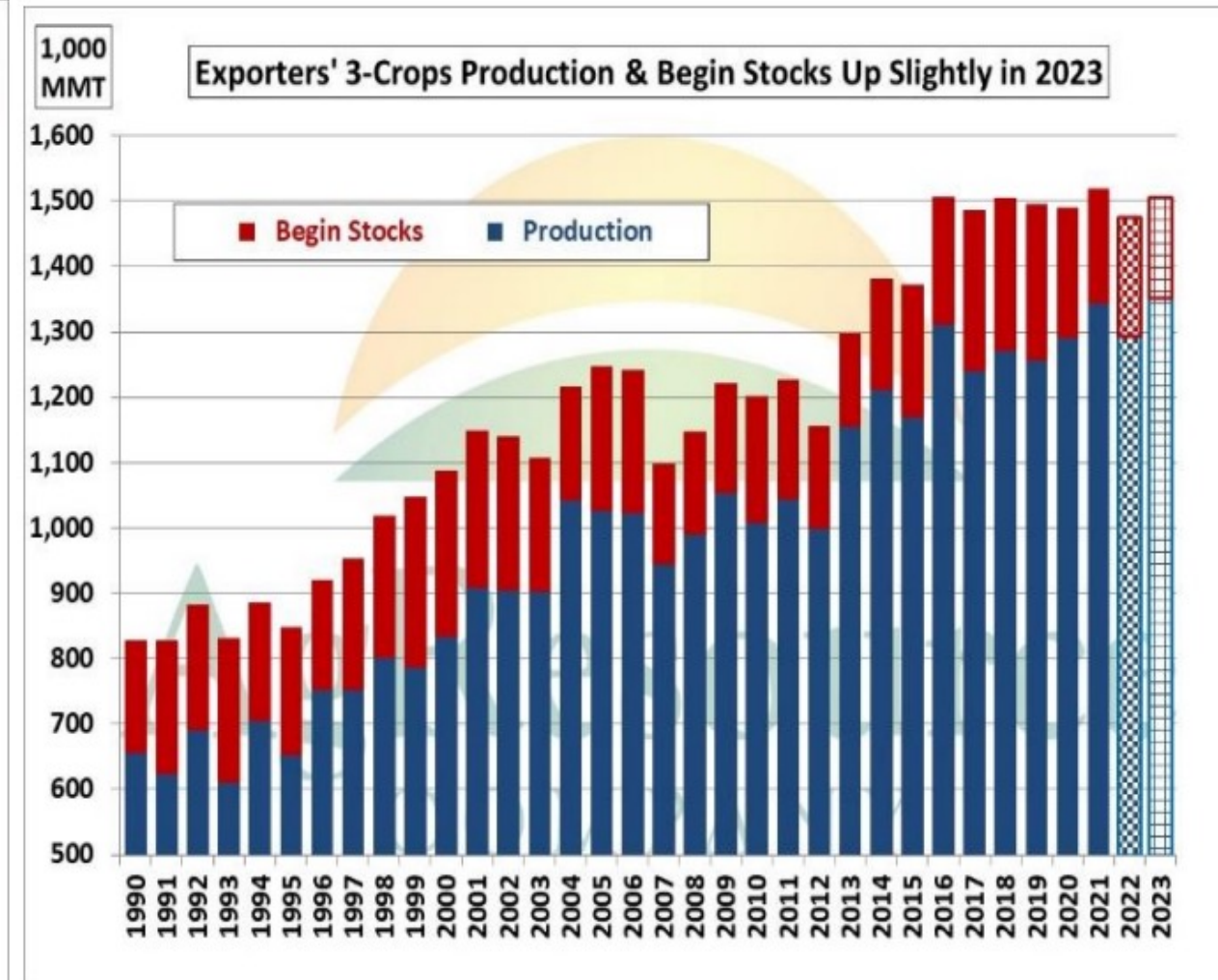
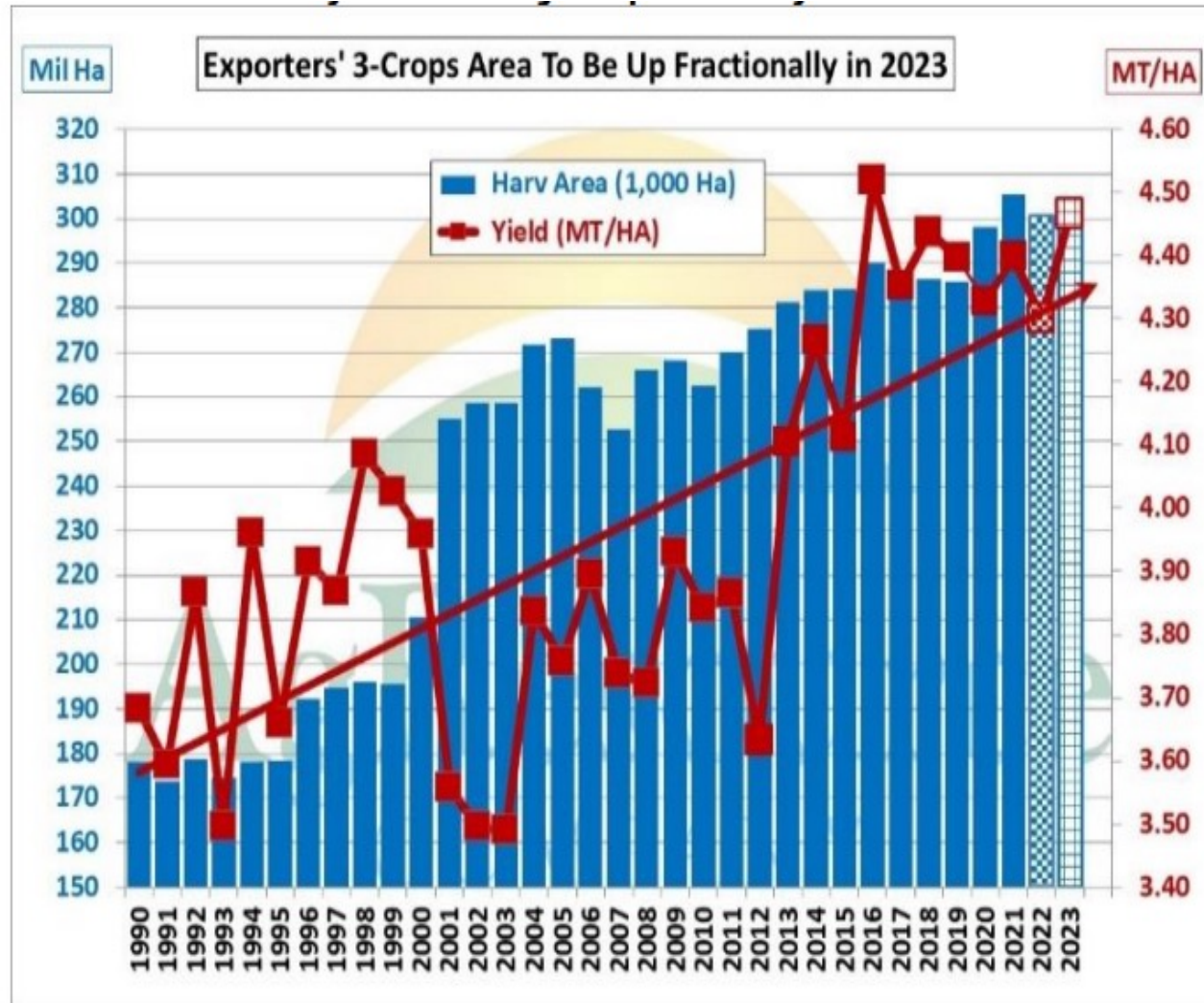
China Remains the Top U.S. Ag Export Market



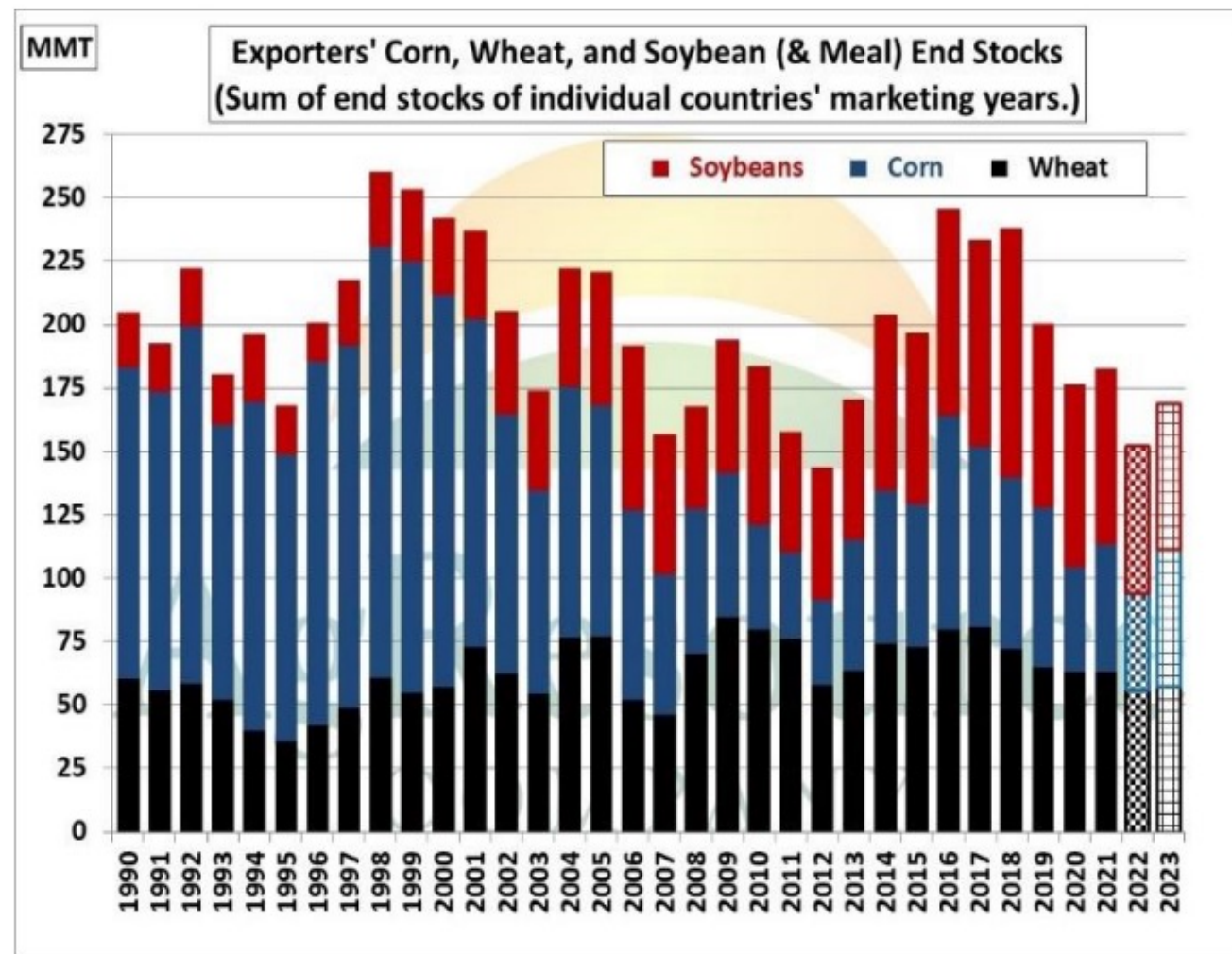
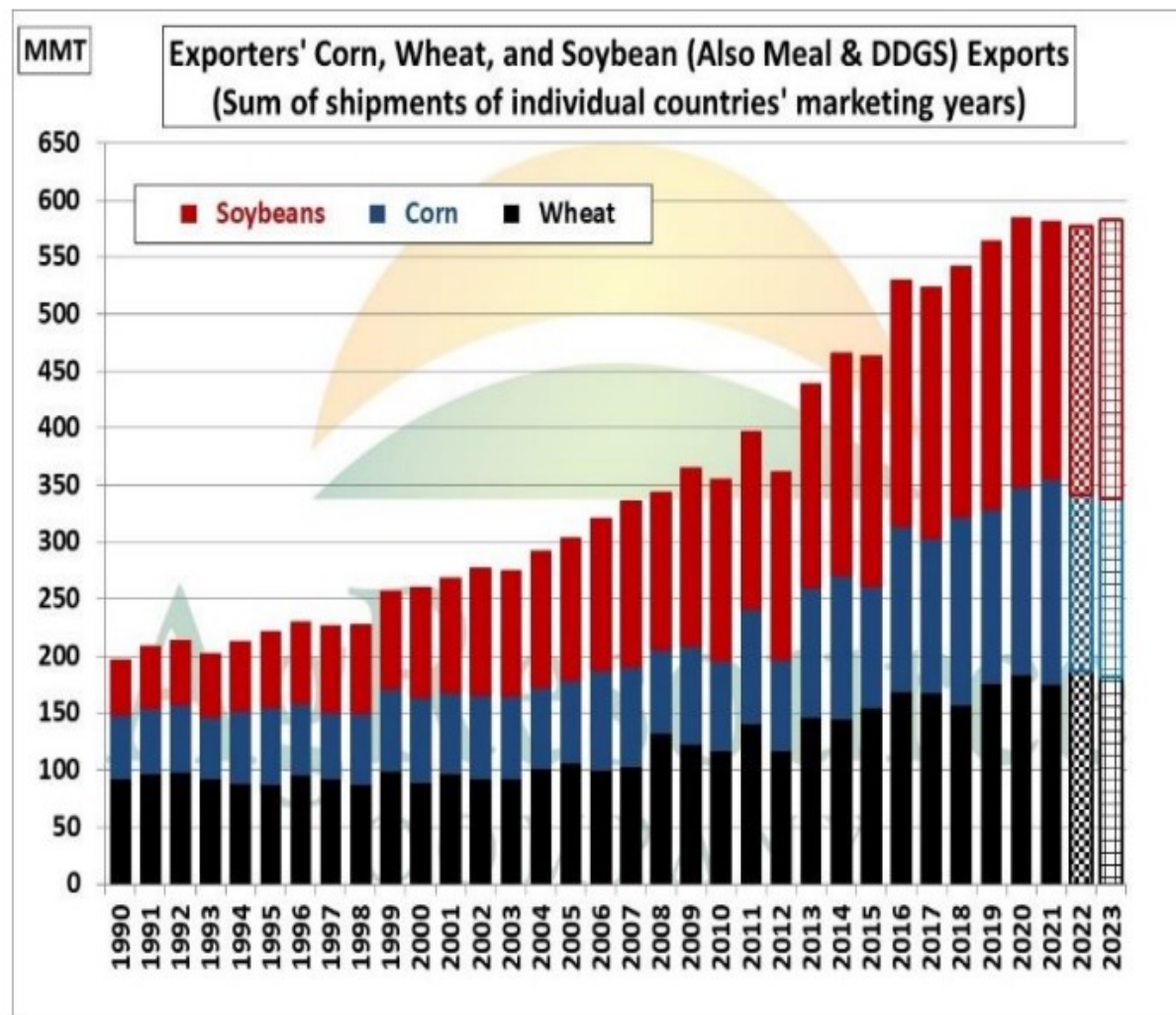
Where to Start: 23/24 World Grain Demand/Stocks



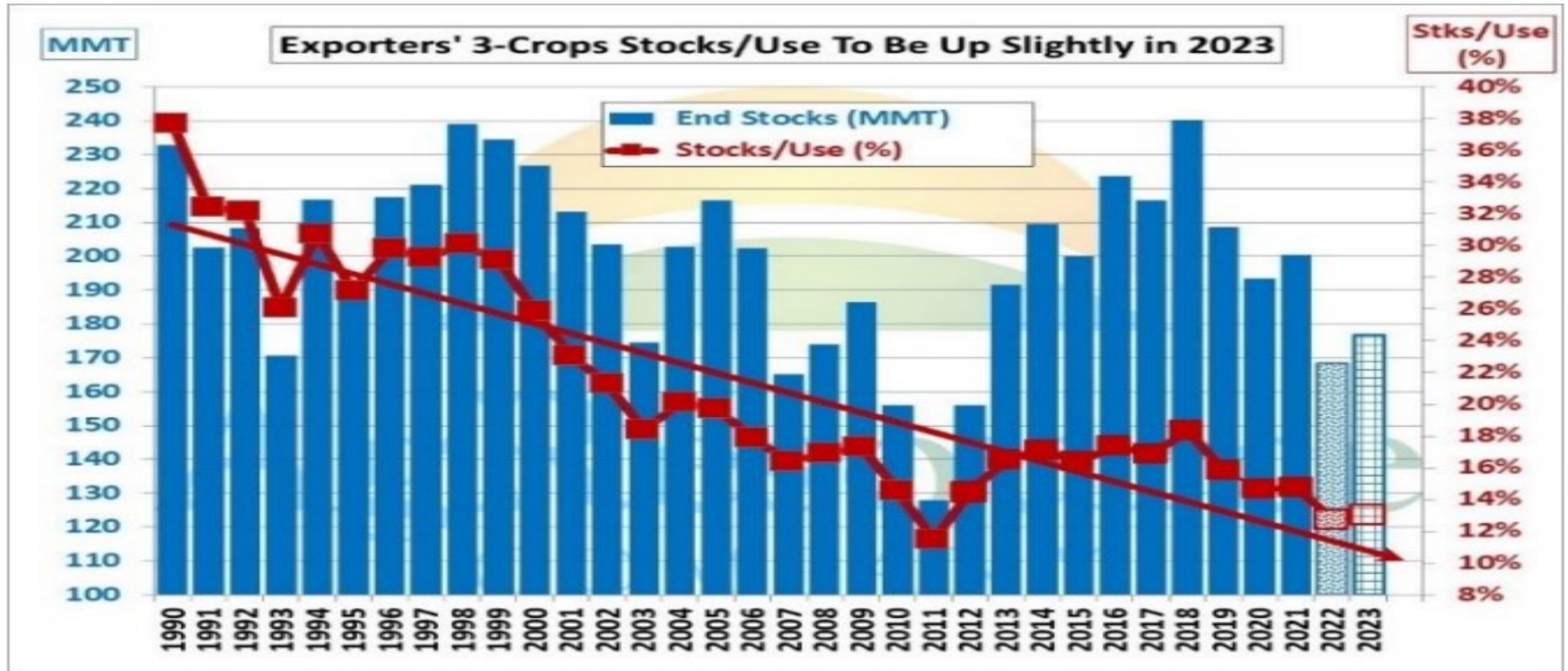
World 3 Primary Crop Seeding Responses to High Price Produced a 1.4% gain in 2023/24 Seedings



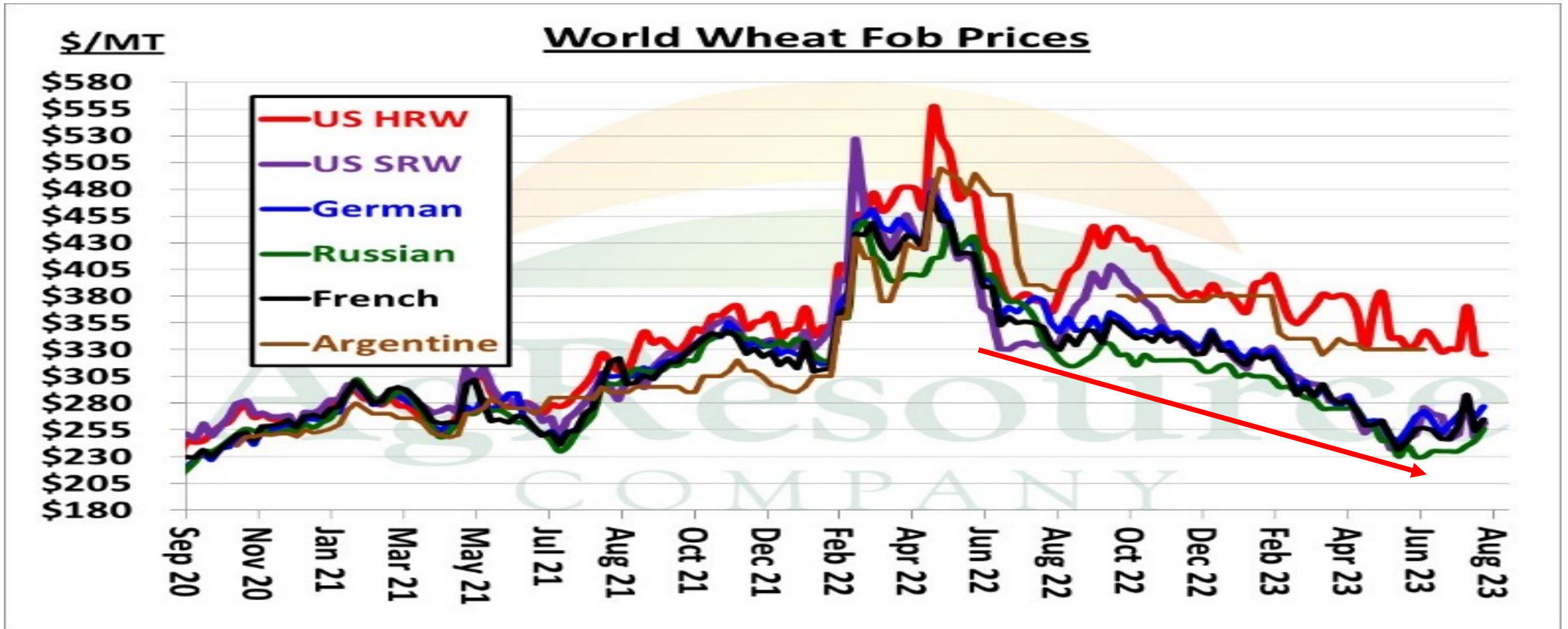
Since Pandemic; World Grain Trade Stagnates while World Stocks in Decline



With Normal Northern Hemisphere Weather, World 3 Crop End Stocks Grow



World FOB Wheat Prices Grinding Lower for a year; Russian Price Rallies after Corridor Halt



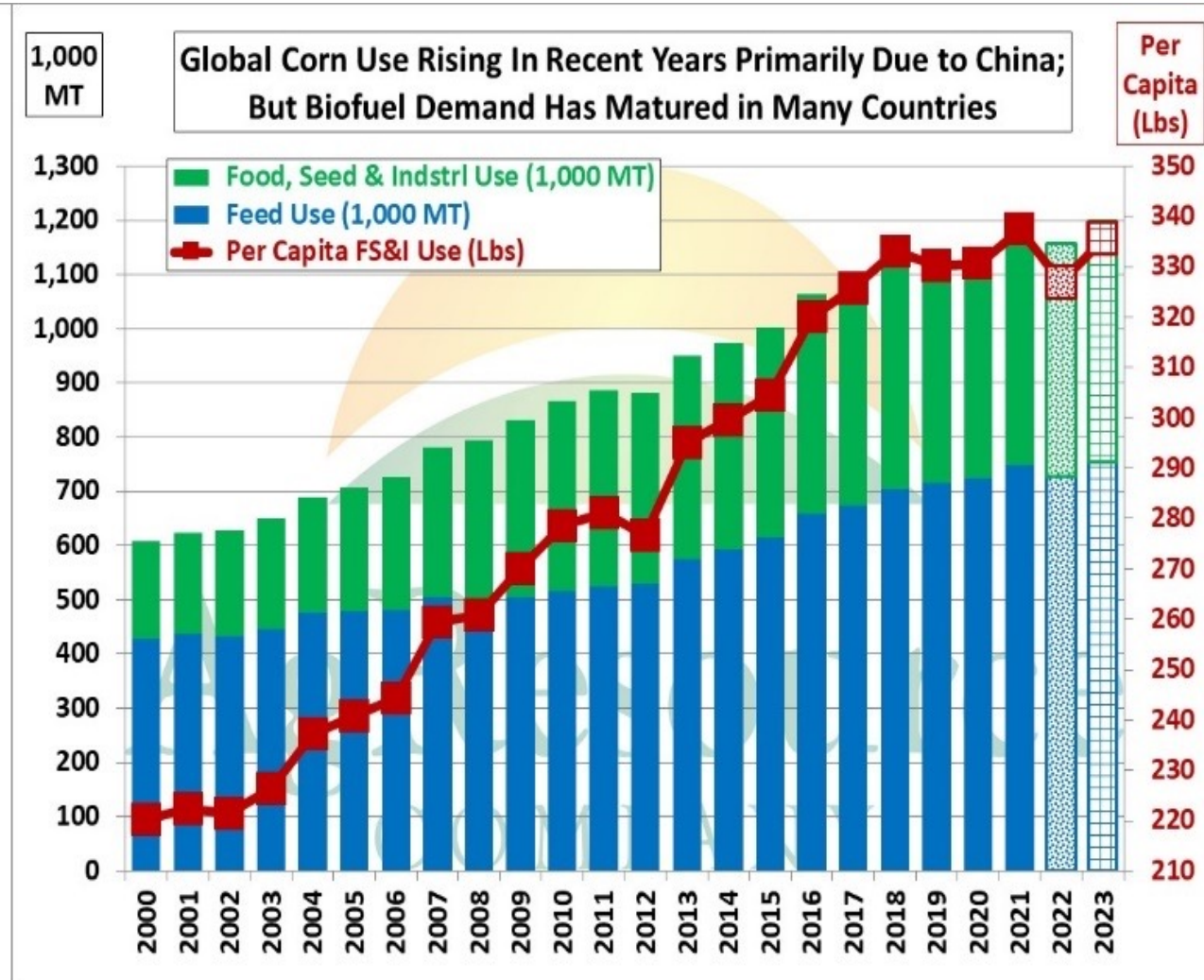
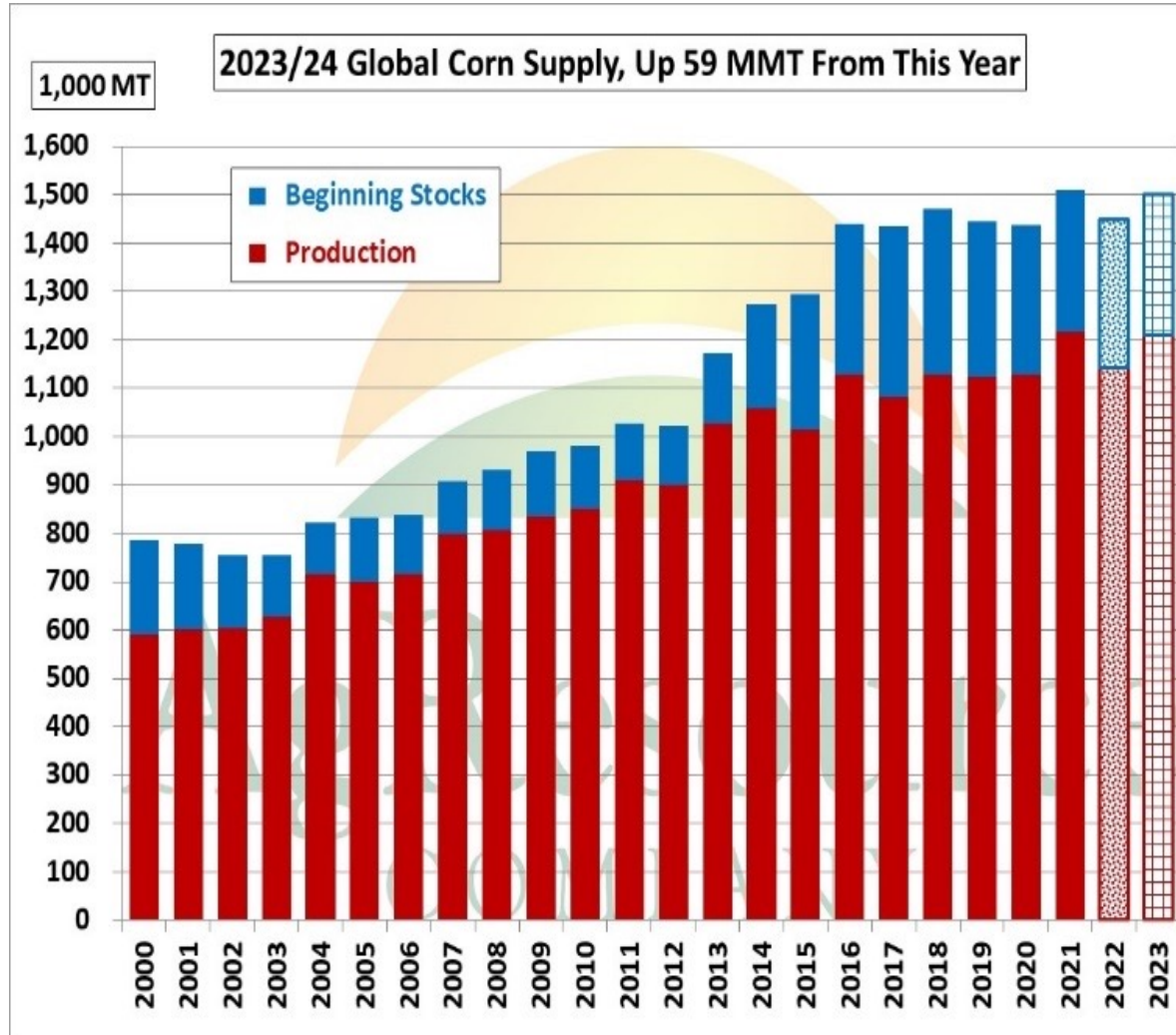
Black Sea Grain Exports were Record Large; Even during war!



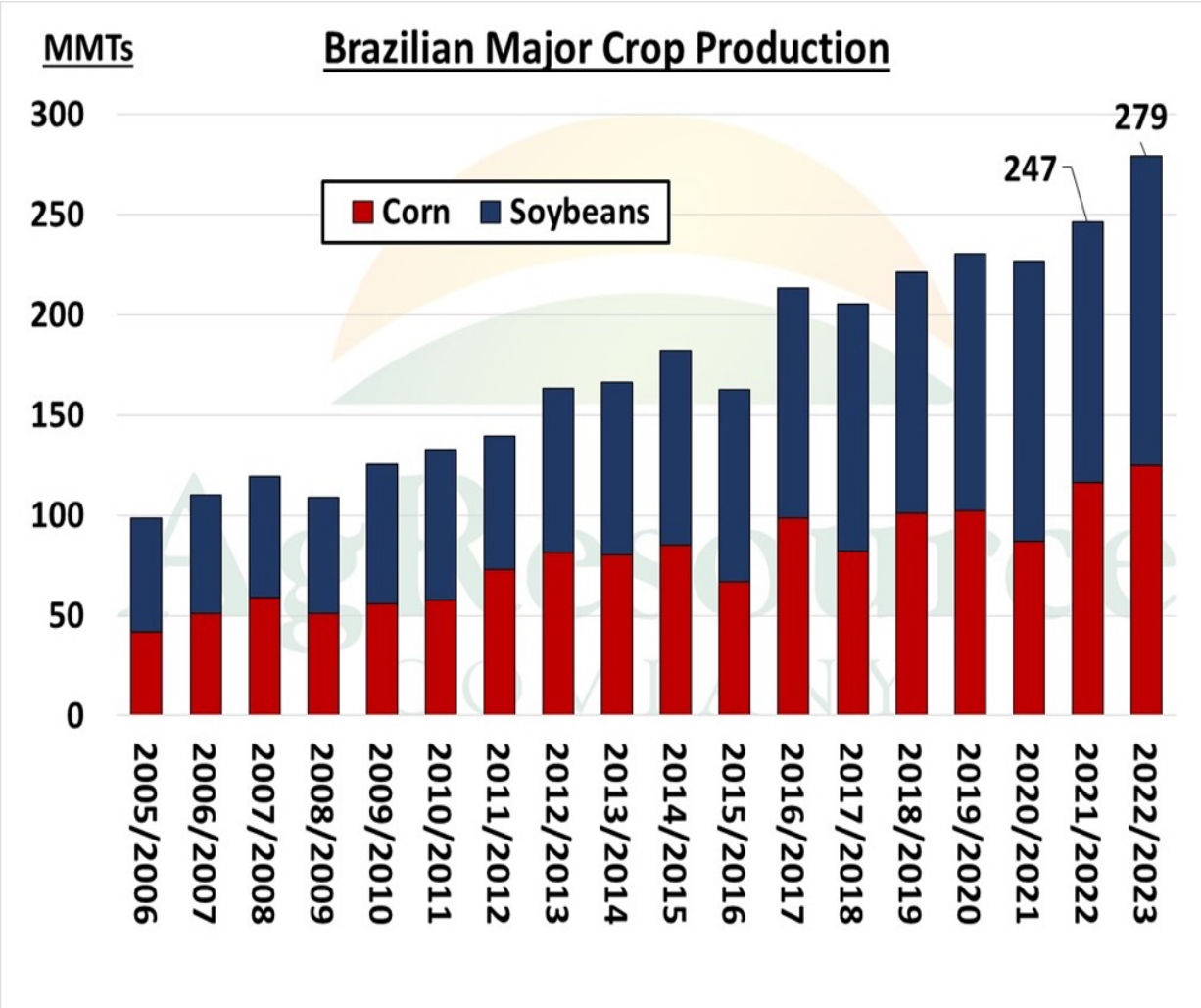
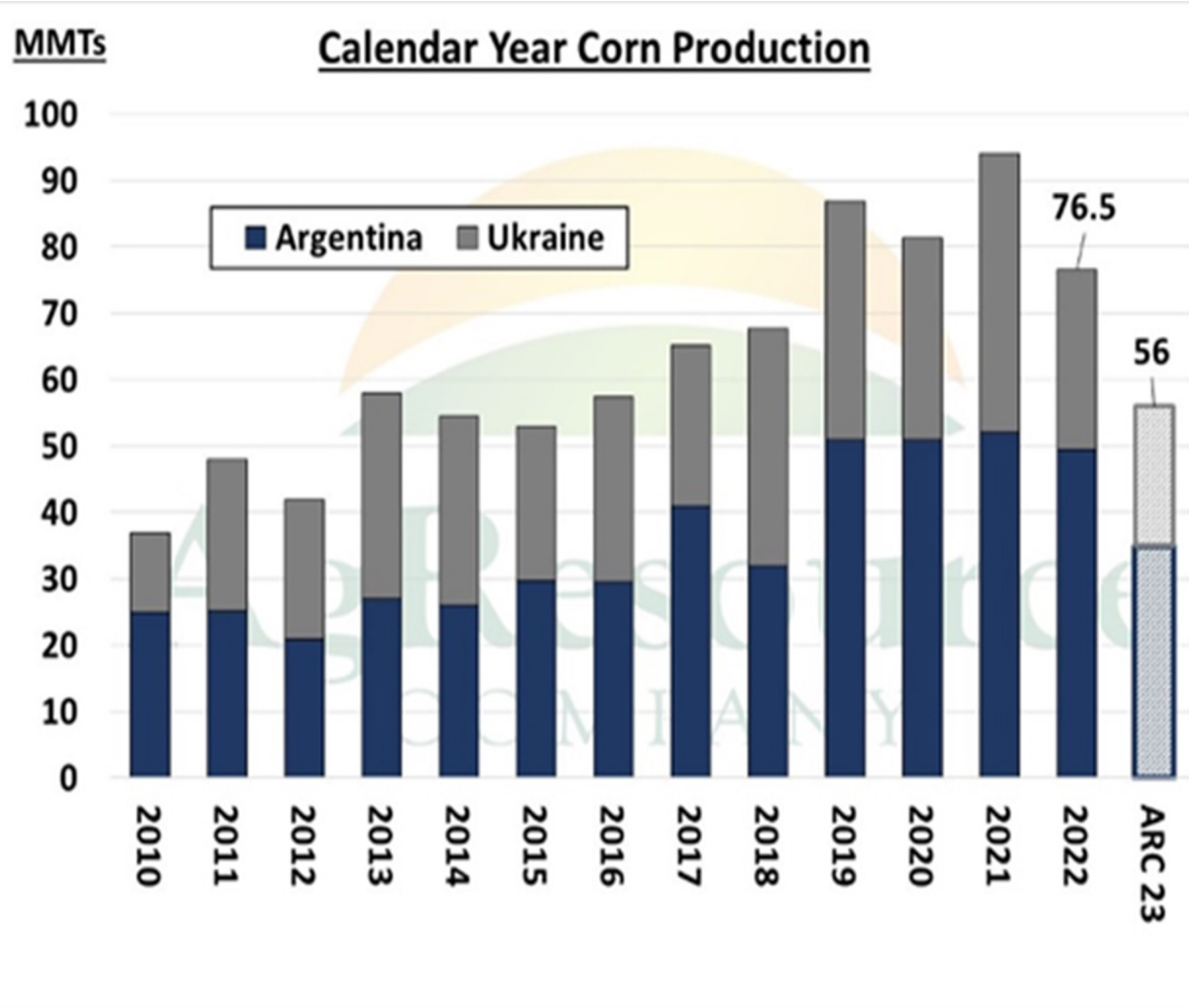
Corn; Its about the Size of the US 2023 Crop!



World Corn Supply to Surge in 2023/24 on US Acres/Improved Yield; Annual Price Range \$2-3/Bu

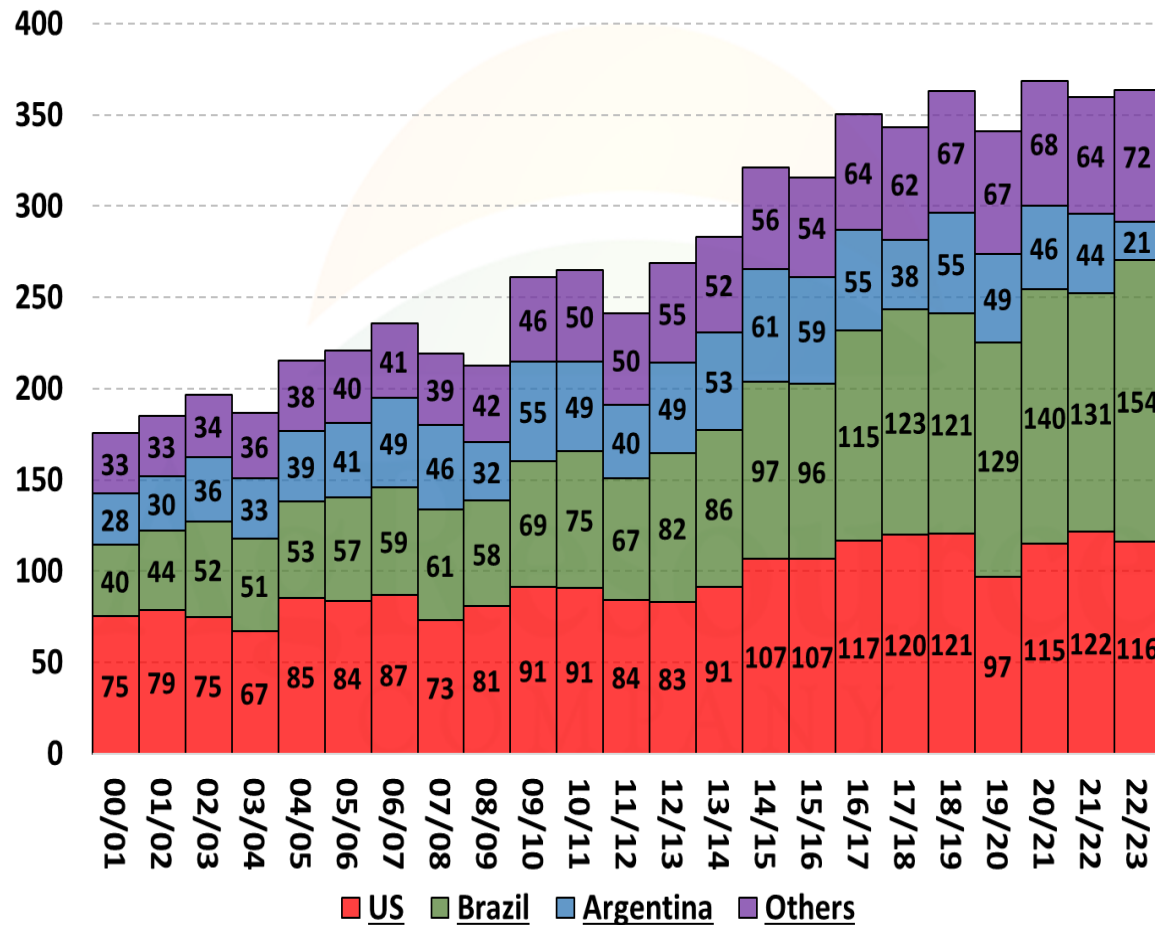


Brazilian Corn Price Sinks on Logistical Fears; China Demand to Produce a Pre-Harvest Low?



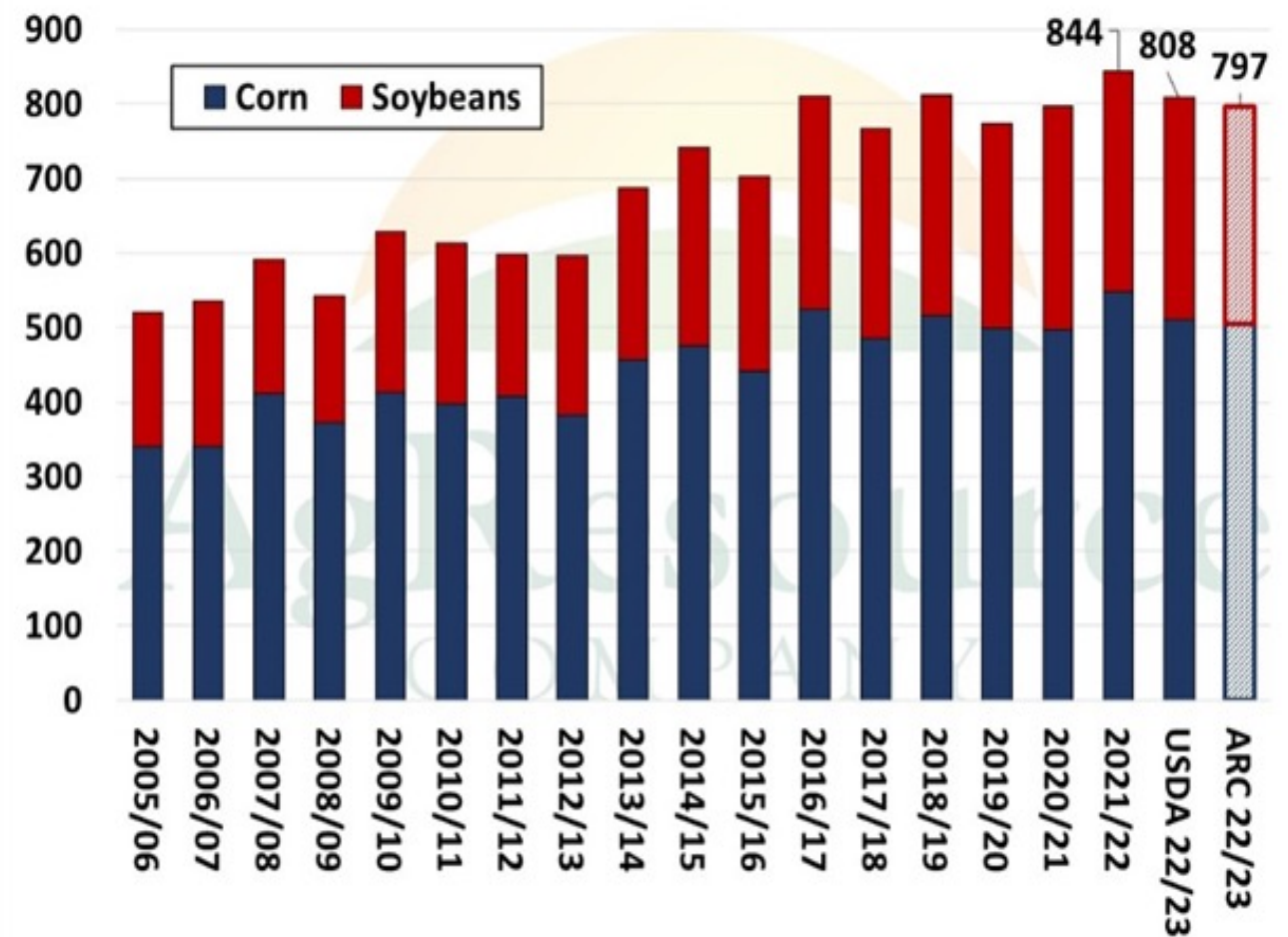
World Soybean Supplies like Last Year

World Soybean Production (MMTs)

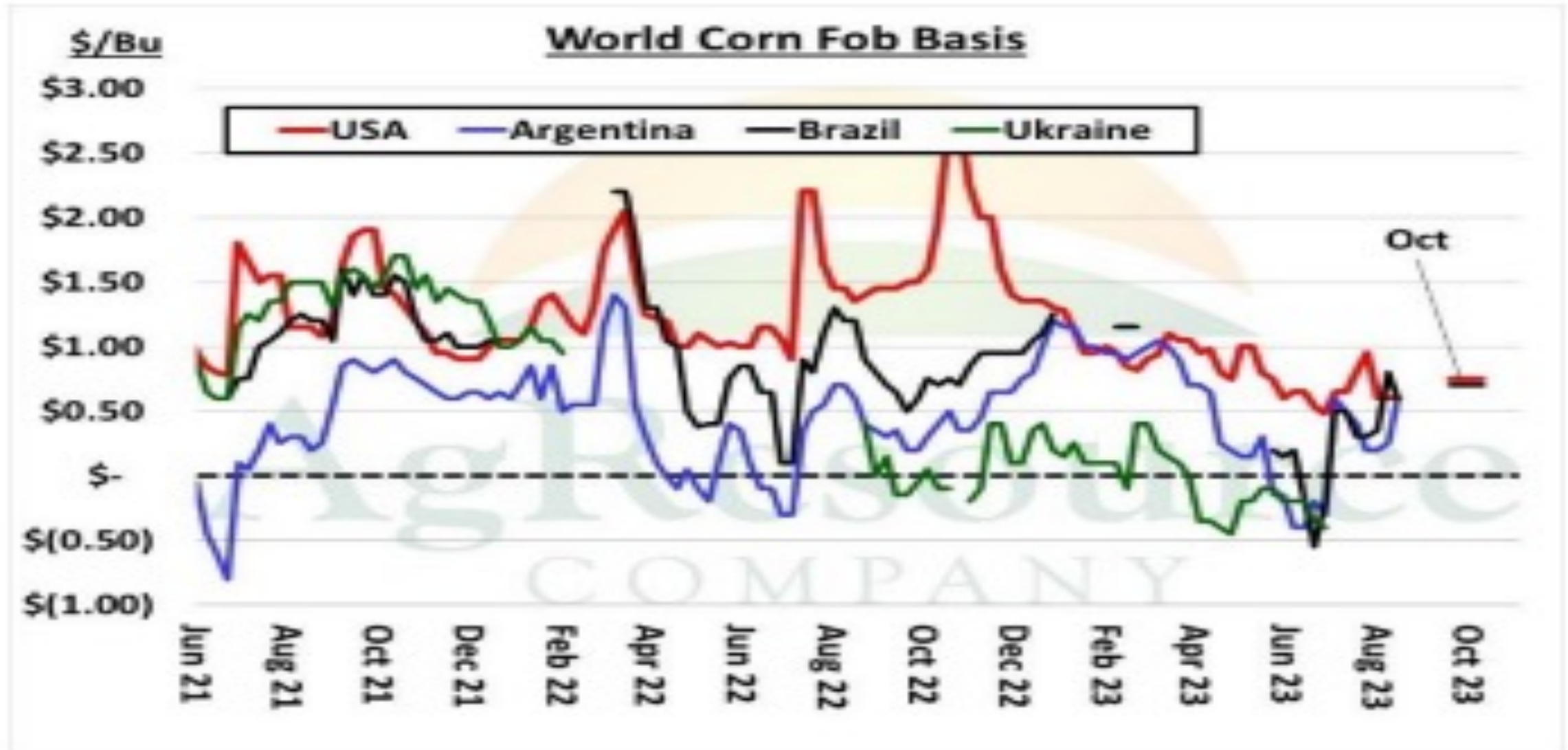


MMTs

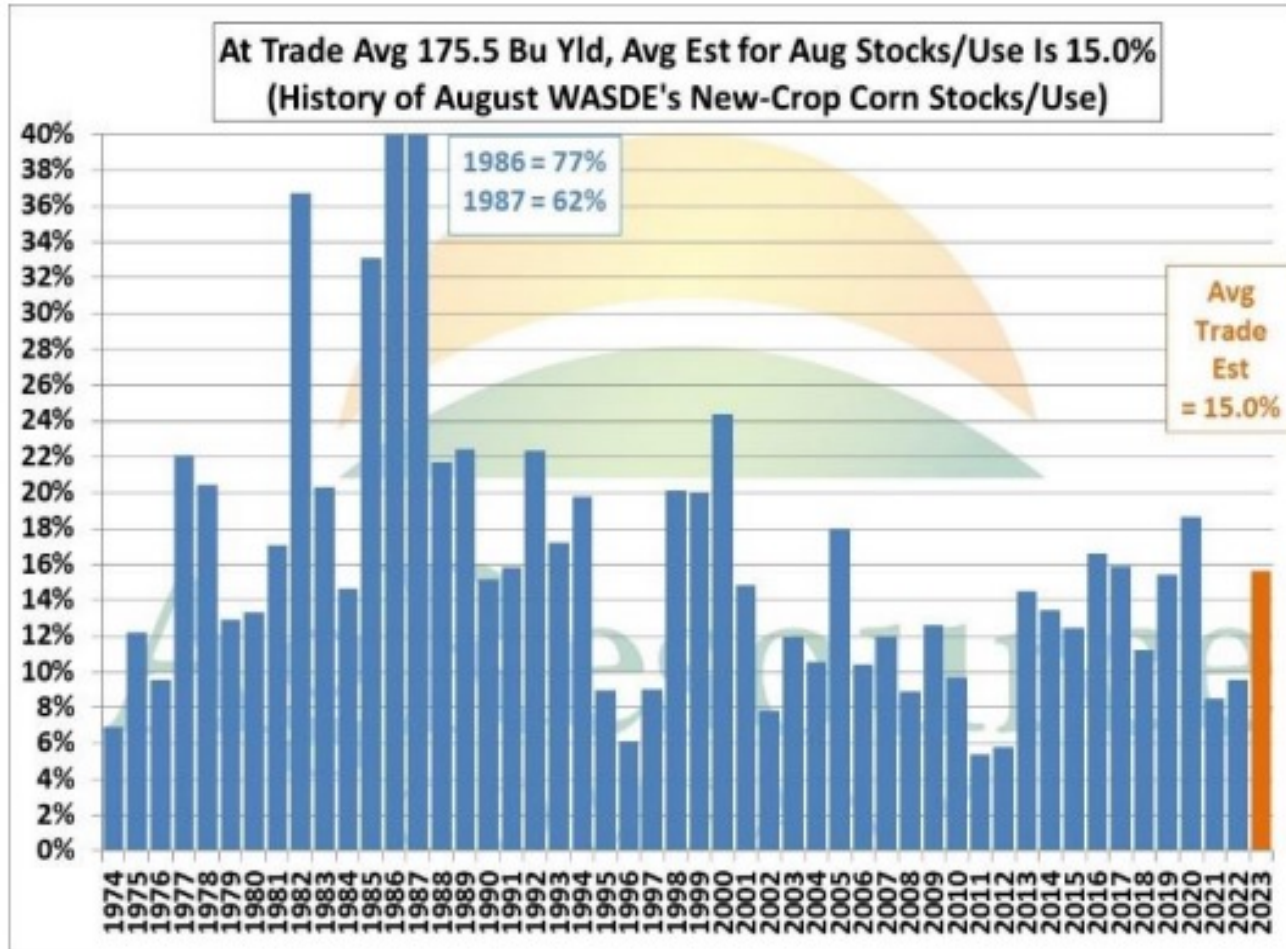
US + South American Production



US Corn Gains Export Competitiveness



Seasonal Low in Spot CBOT corn at \$4.50-4.70/Bu. Longer Term Bottom Forming



Low Carbon Fuel Choices Gain Political Appeal

Guide to Bio-Based Fuels

RENEWABLE DIESEL

Renewable fuel that is chemically the same as petroleum diesel.

RENEWABLE
DIESEL
100% FUEL

Can be used in existing petroleum pipelines, storage tanks and diesel engines.

MADE FROM:

- ▶ vegetable oils
- ▶ animal fats
- ▶ recycled restaurant grease



BIODIESEL

Renewable, biodegradable fuel that must be blended with petroleum diesel.

BIODIESEL ← BETWEEN 2% AND 20%
PETROLEUM DIESEL ← BETWEEN 98% AND 80%

MADE FROM:

- ▶ vegetable oils
- ▶ animal fats
- ▶ recycled restaurant grease



SUSTAINABLE AVIATION FUEL

The common term for non-petroleum jet fuel.

SAF ← BETWEEN 10% AND 50%
JET FUEL ← BETWEEN 90% AND 50%

MADE FROM:

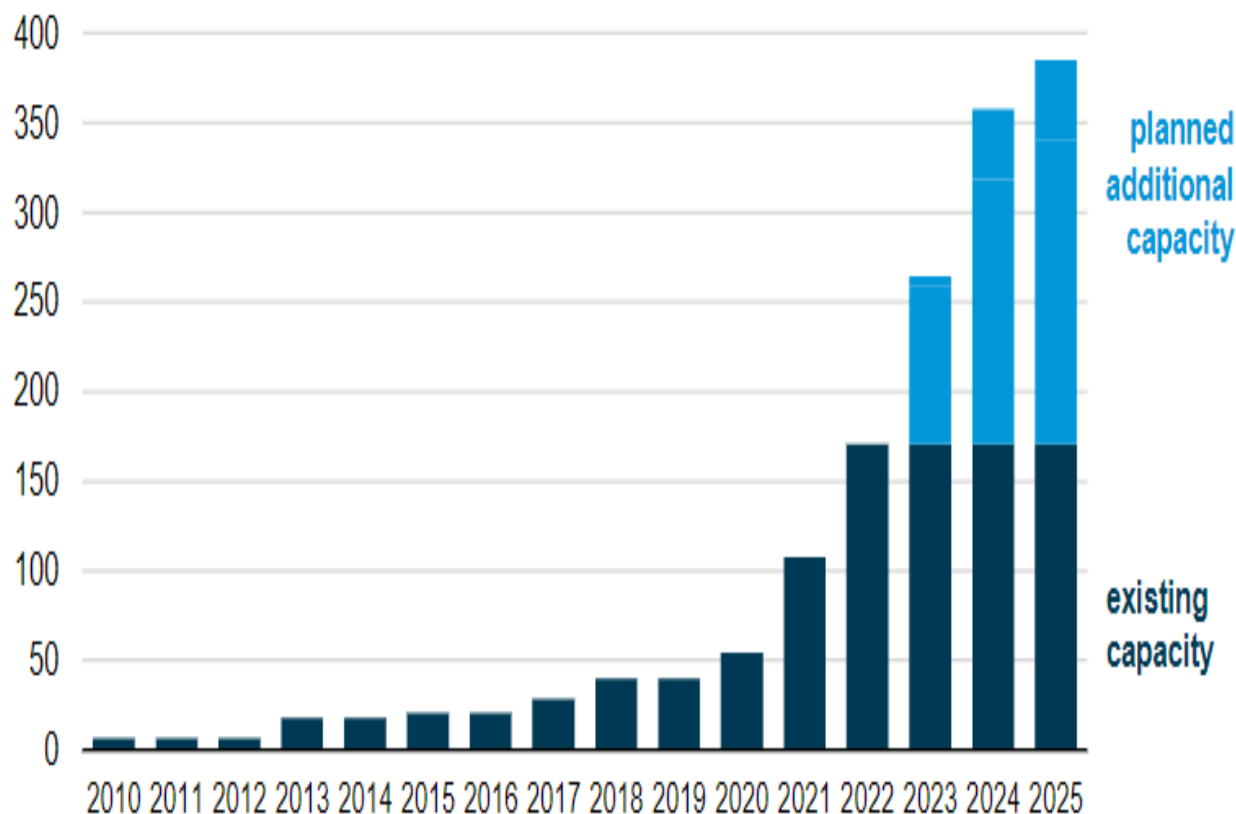
- ▶ wood residue
- ▶ animal fats
- ▶ algae
- ▶ cooking/vegetable oil
- ▶ sugars/alcohol
- ▶ ethanol
- ▶ greases



2023 and 2024 are the Big Uptick Years in US Renewable Diesel Production

Annual existing and expected U.S. renewable diesel production capacity (2010–2025)

thousand barrels per day



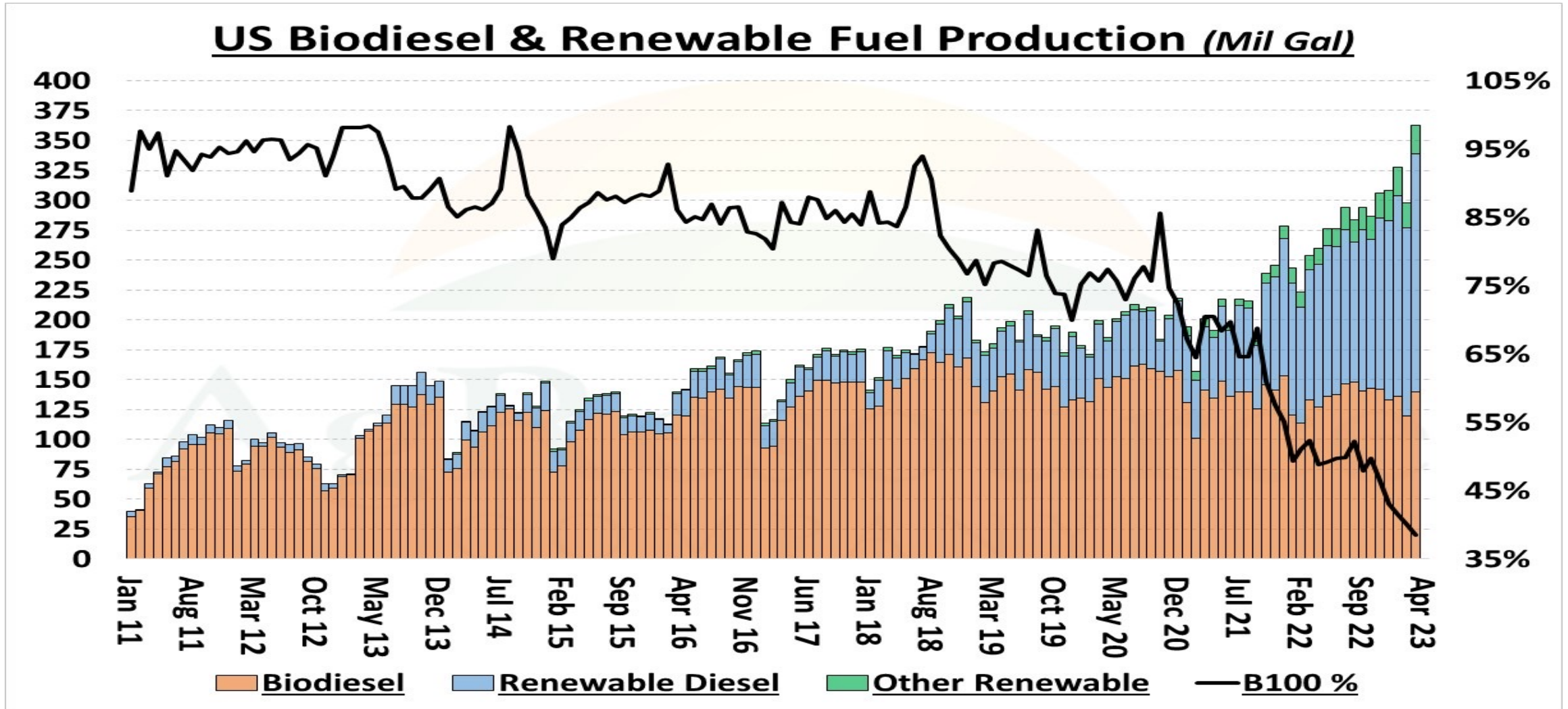
Data source: Company announcements and trade press

| Company | City | State | Annual Nameplate Capacity (million gallons) |
|--|-------------|-------|---|
| Diamond Green Diesel LLC | Norco | LA | 982 |
| Diamond Green Diesel LLC | Port Arthur | TX | 470 |
| Dakota Prairie Refining LLC / Marathon | Dickinson | ND | 192 |
| Calumet Montana Refining | Calumet | MT | 135 |
| Holly Frontier | Artesia | NM | 125 |
| Phillips 66 CO | Rodeo | CA | 120 |
| Wyoming Renewable Diesel CO / Holly Frontier | Sinclair | WY | 117 |
| Renewable Energy Group / Chevron USA Inc | Geismar | LA | 100 |
| CVR Energy | Wynnewood | OK | 100 |
| Cheyenne Renewable Diesel Company LLC / Holly Frontier | Cheyenne | WY | 92 |
| Seaboard Energy | Hugoton | KS | 85 |
| BP Products North America / BP Cherry Point Refinery | Blaine | WA | 66 |
| Altair Paramount LLC / World Energy | Paramount | CA | 42 |
| Chevron USA Inc | El Segundo | CA | 31 |
| Kern Oil & Refining / Kern Energy | Bakersfield | CA | 6 |
| East Kansas Agri-Energy Renewable Diesel | Garnett | KS | 3 |

Source: EIA, *Render* and *Biodiesel* Magazines

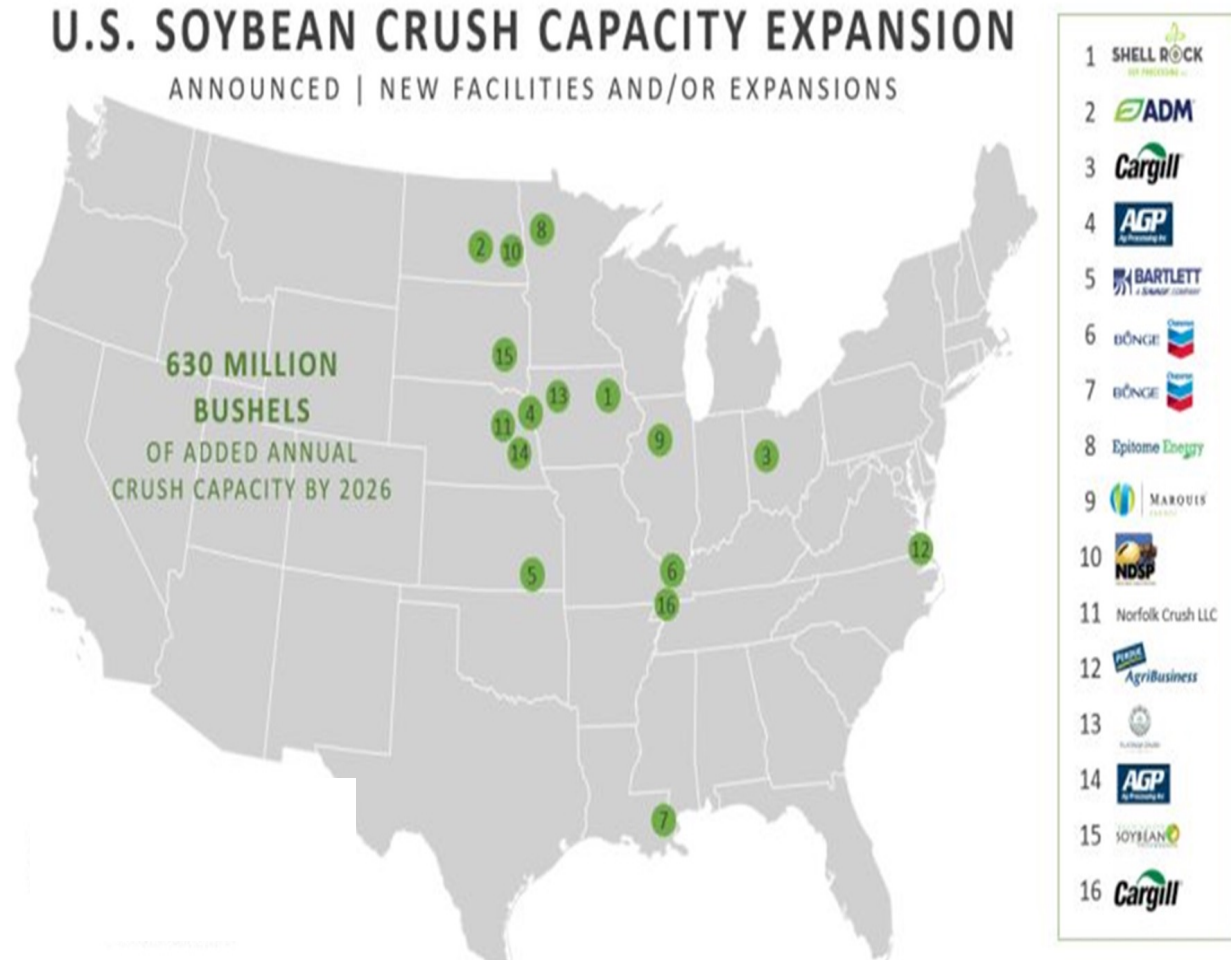
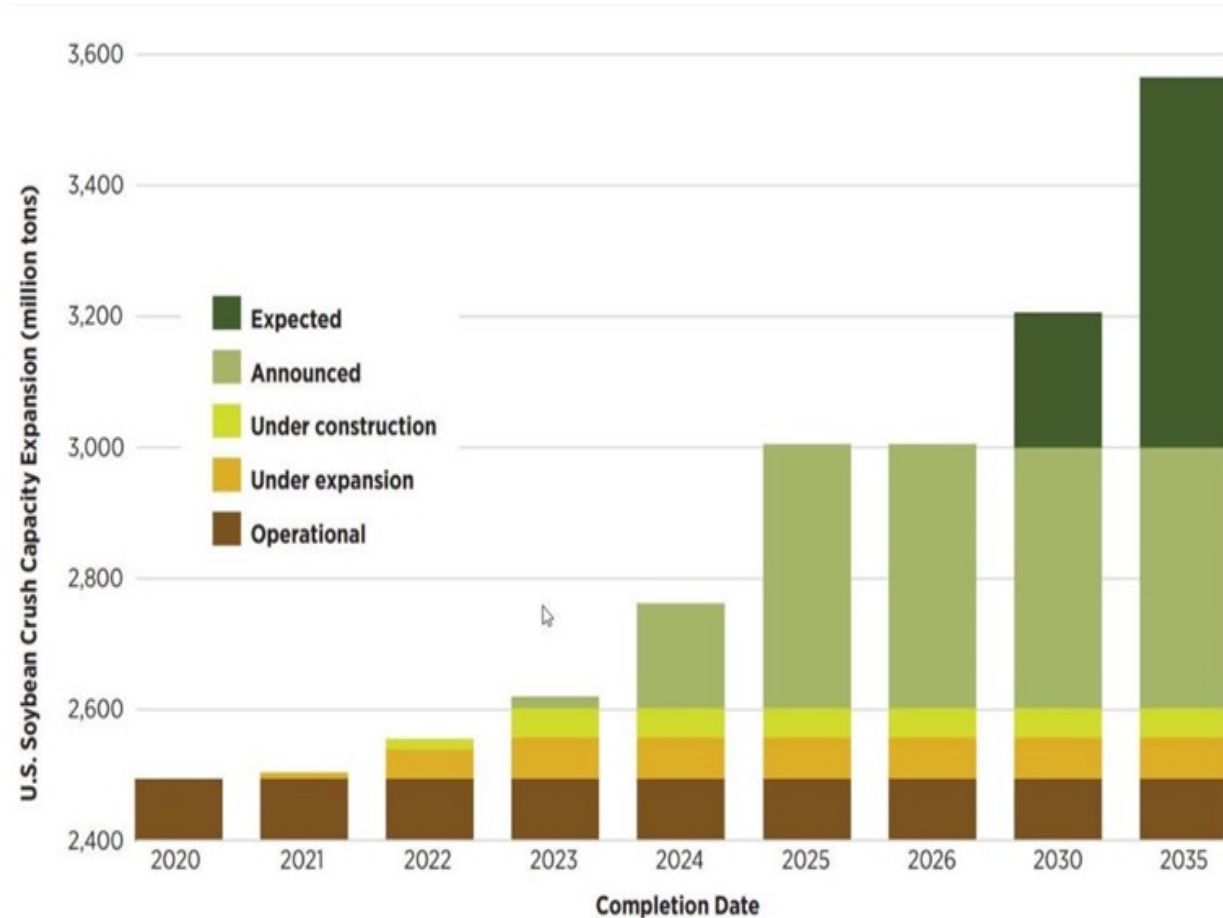
Biofuel Production Continues to Set New Highs.

B100 Share Declines



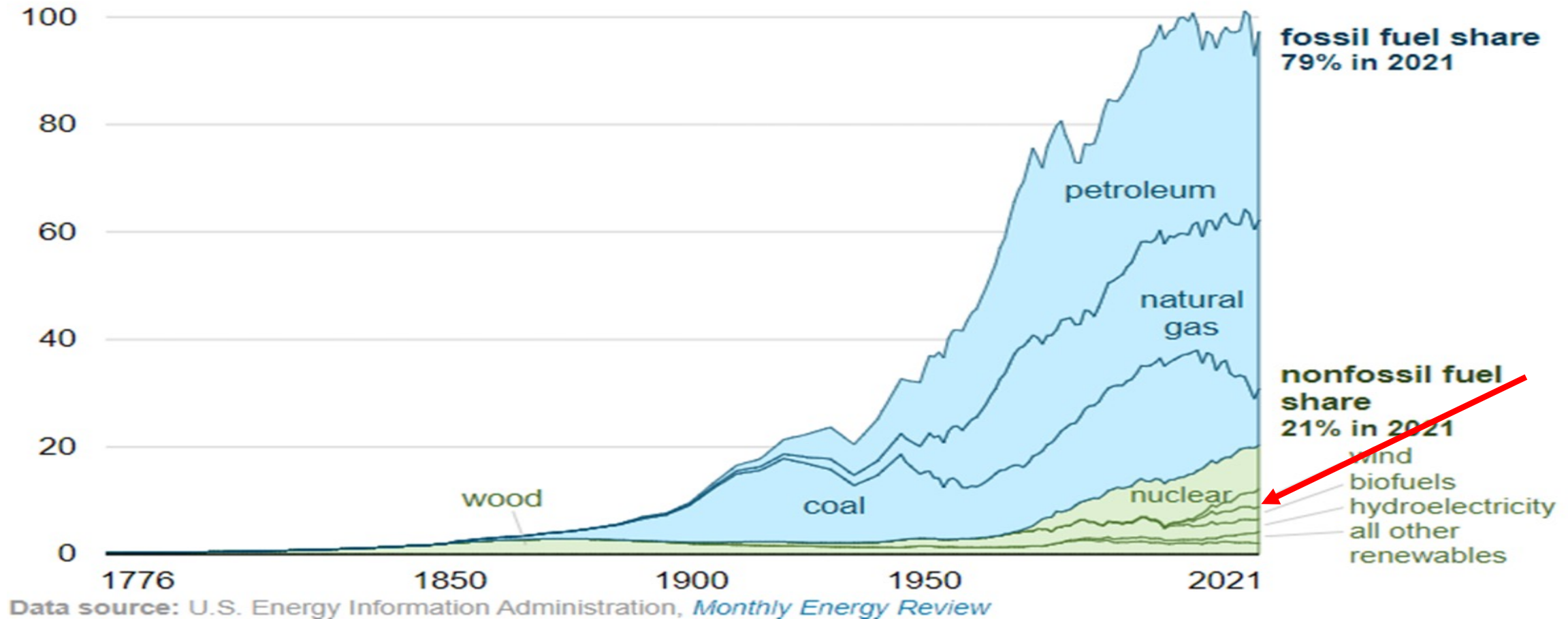
Biggest Increase in US Crush Capacity is 2025

– a Year Beyond Renewable Diesel



But Not Enough Investment in Fossil Fuel Production; Biofuels just 3.8% of Total US Energy!

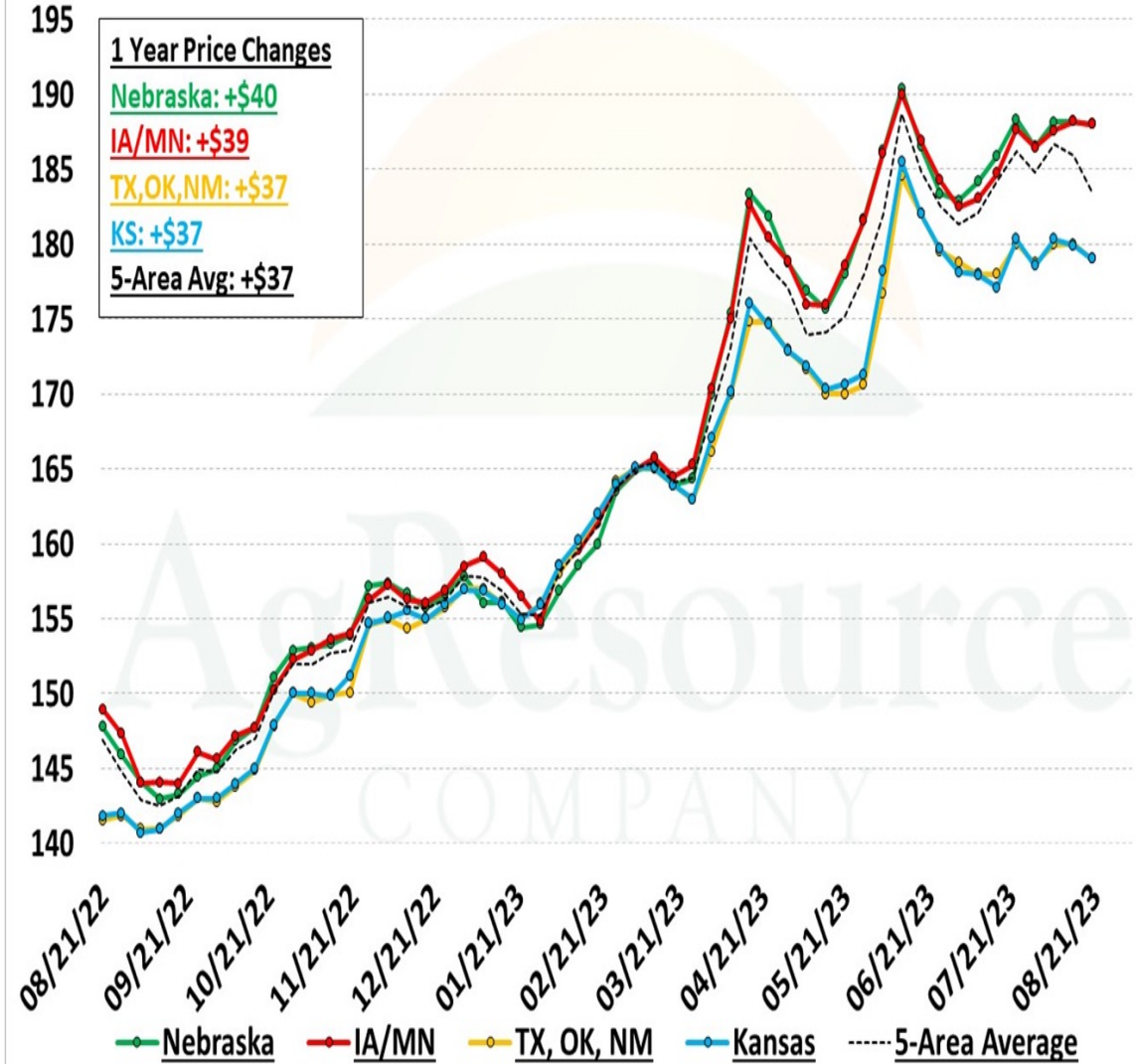
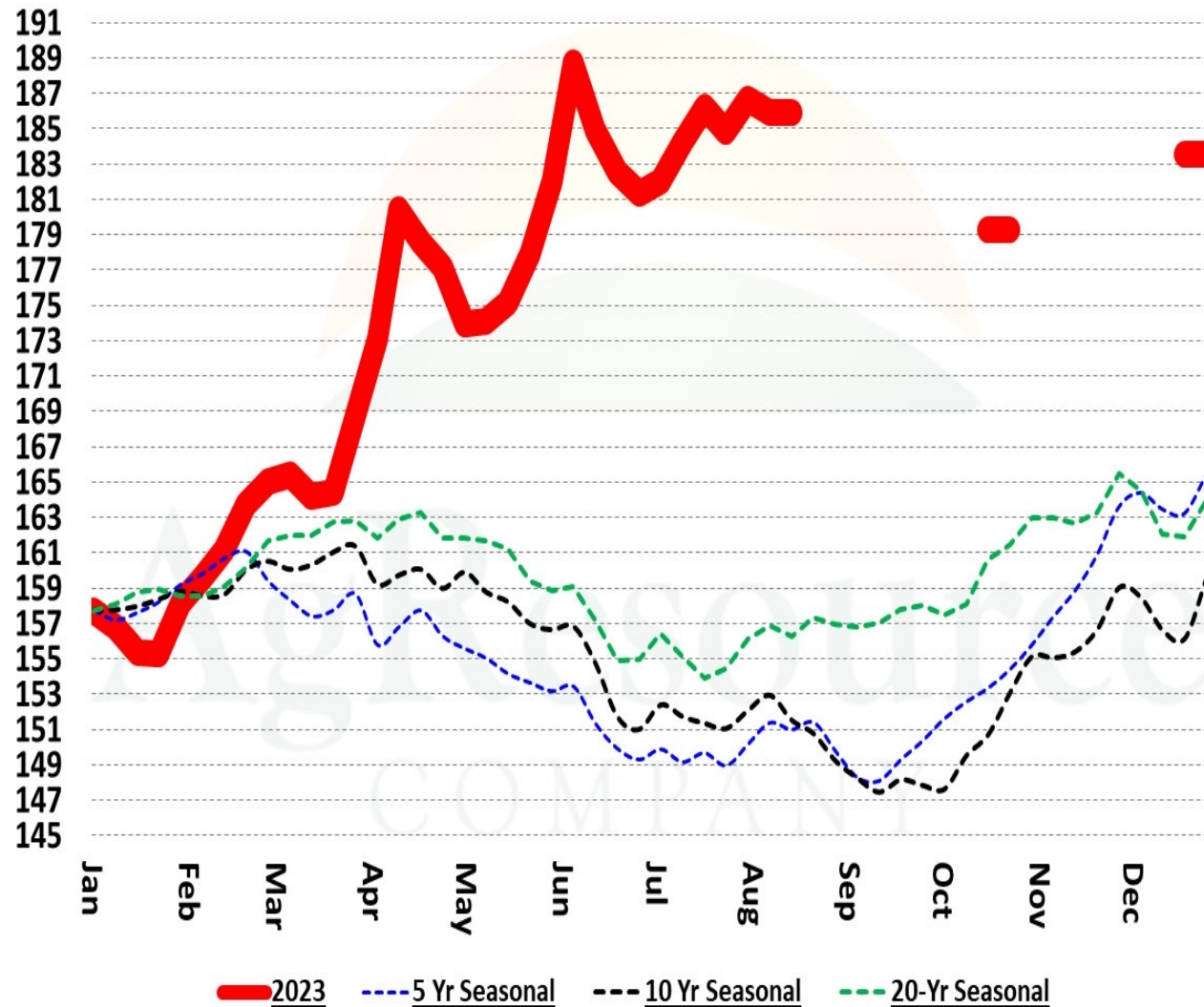
Energy consumption in the United States (1776–2021)
quadrillion British thermal units



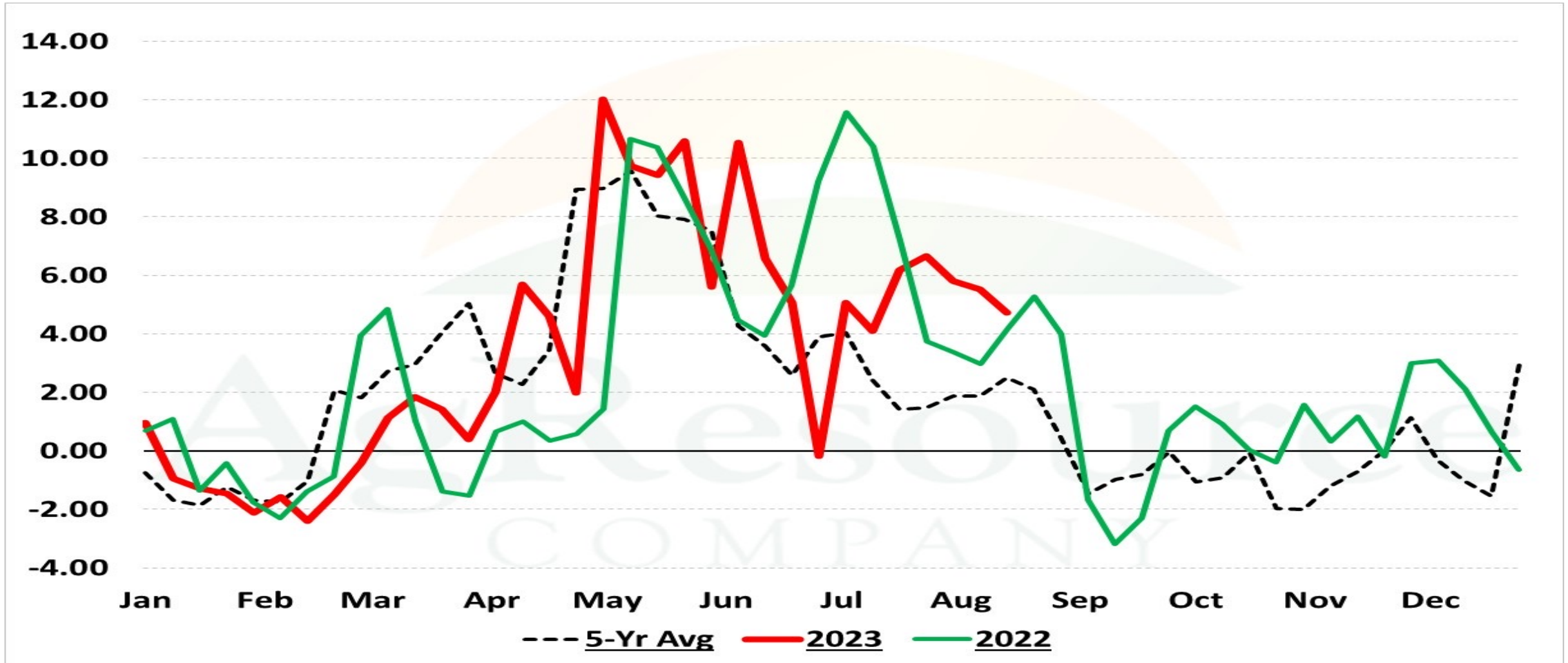
The Bullish Cattle Story Lasts into 2026



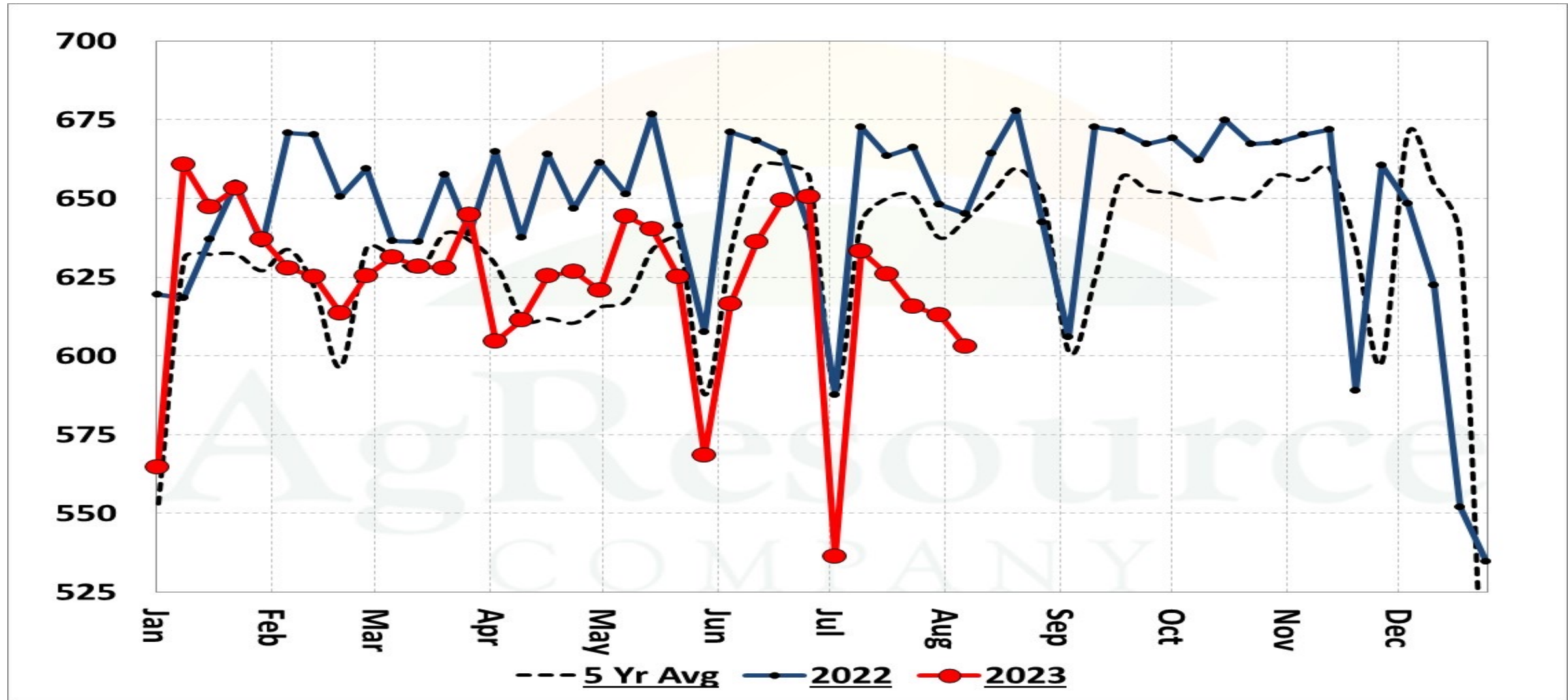
5-Area Steer Seasonal Price; The North Leads



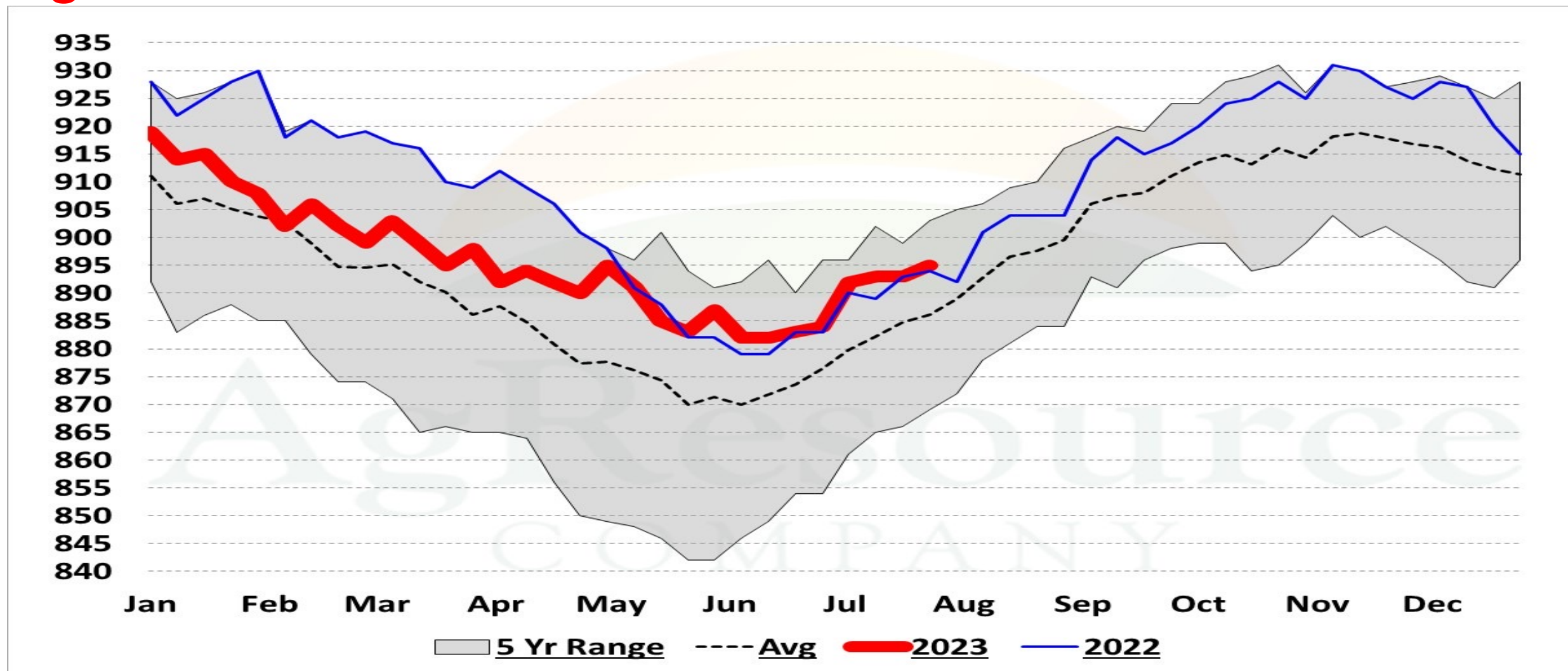
5-Area Steer Seasonal Basis; Seasonal narrowing ahead



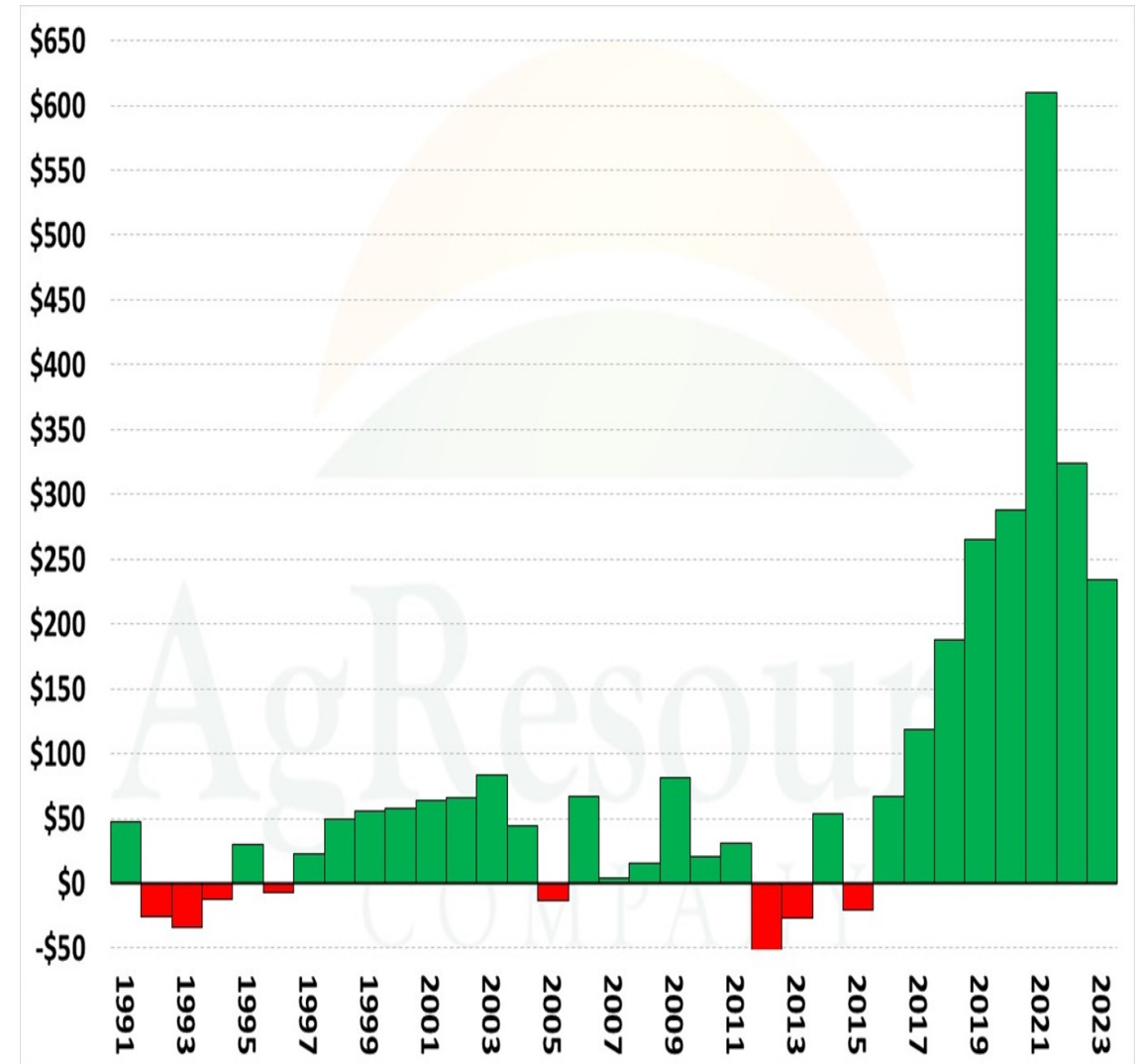
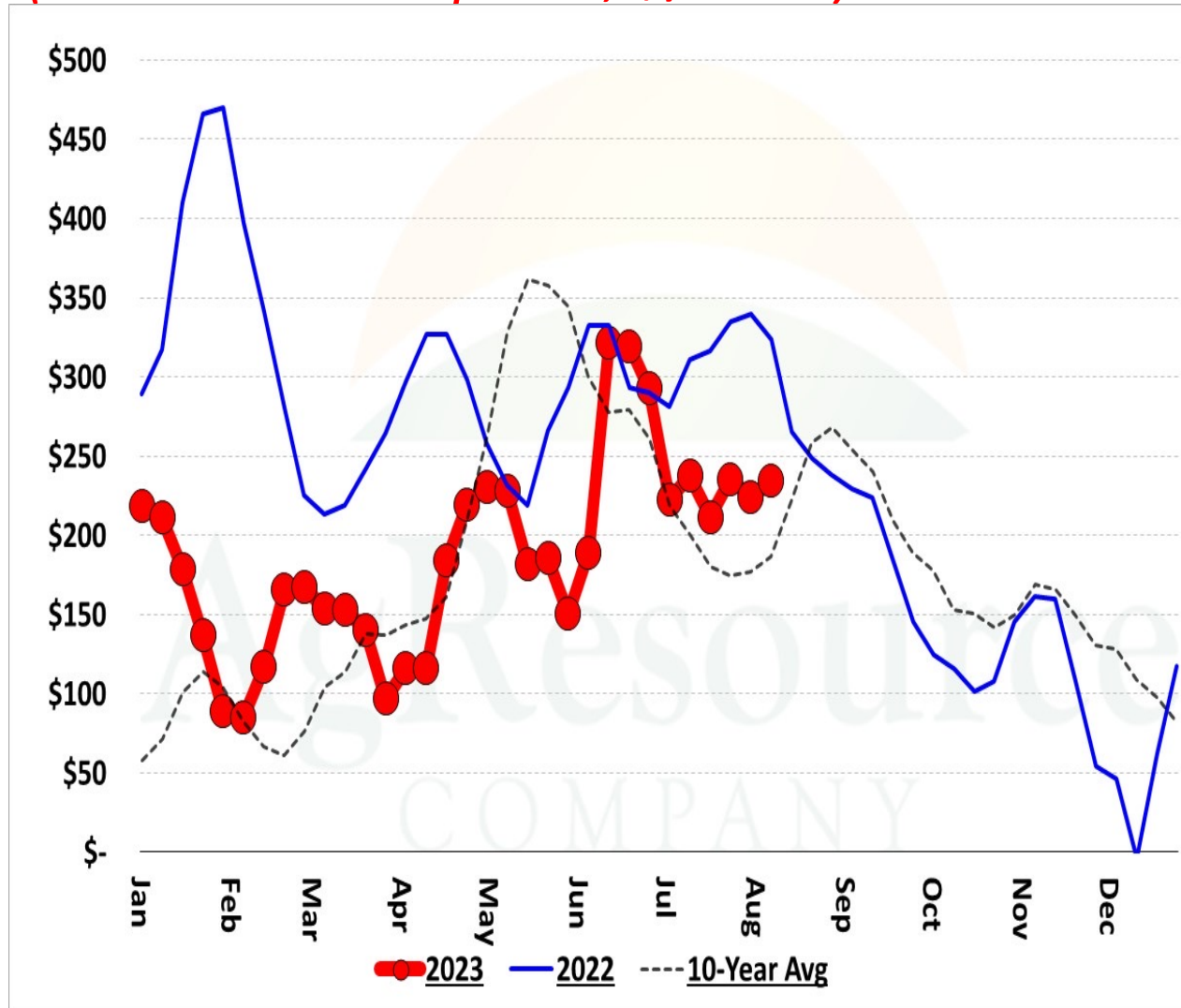
Weekly Cattle Kill (1,000 Head) -4% in 2023; The Year to Finish at -4.6%



Weekly Steer Carcass Weights; Accelerated gains into 2024

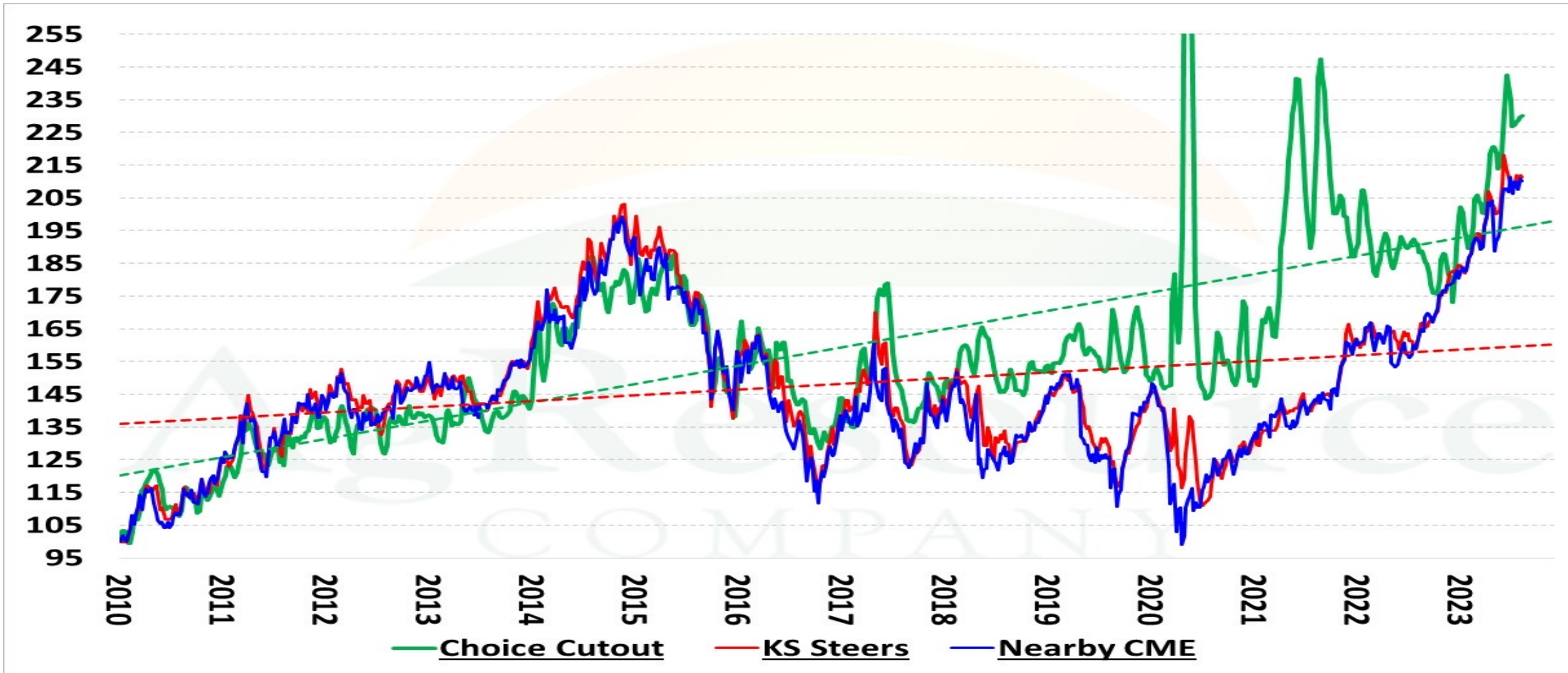


Estimated Slaughter Margins/Mid August Kill Margins (Live to Cutout Spread, \$/Head)

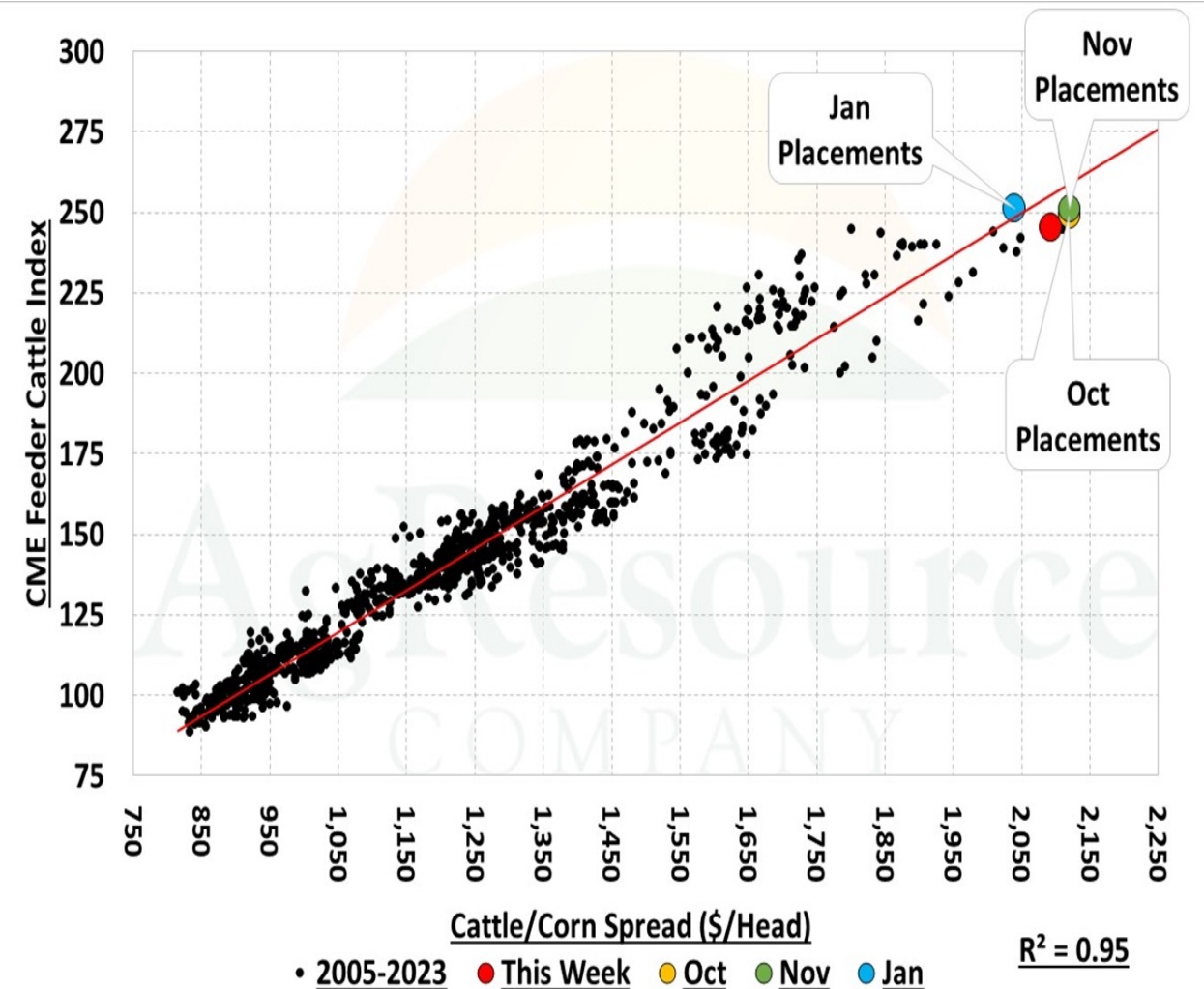
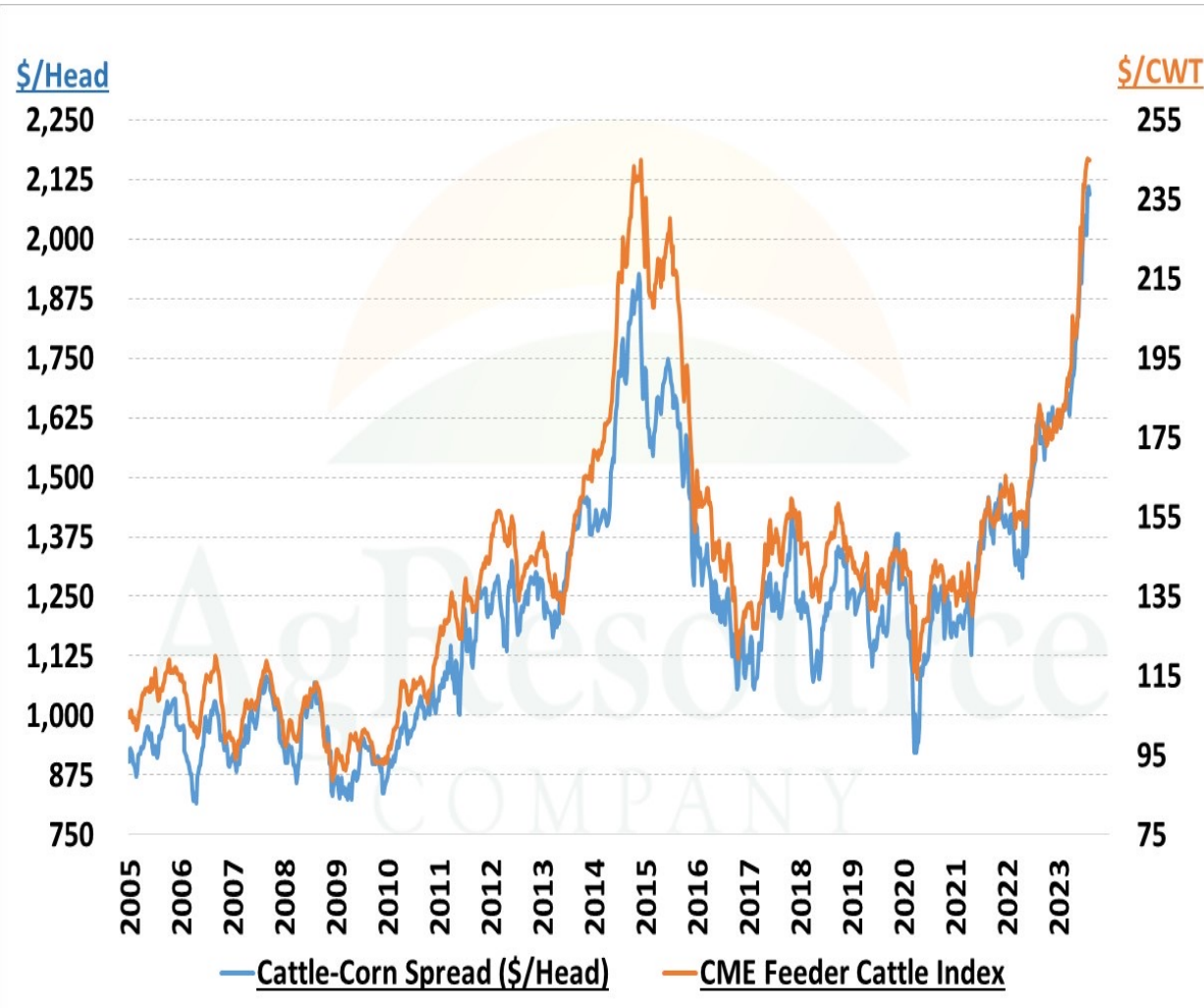


Cattle and Beef Price Indexes

Jan 2010 = 100



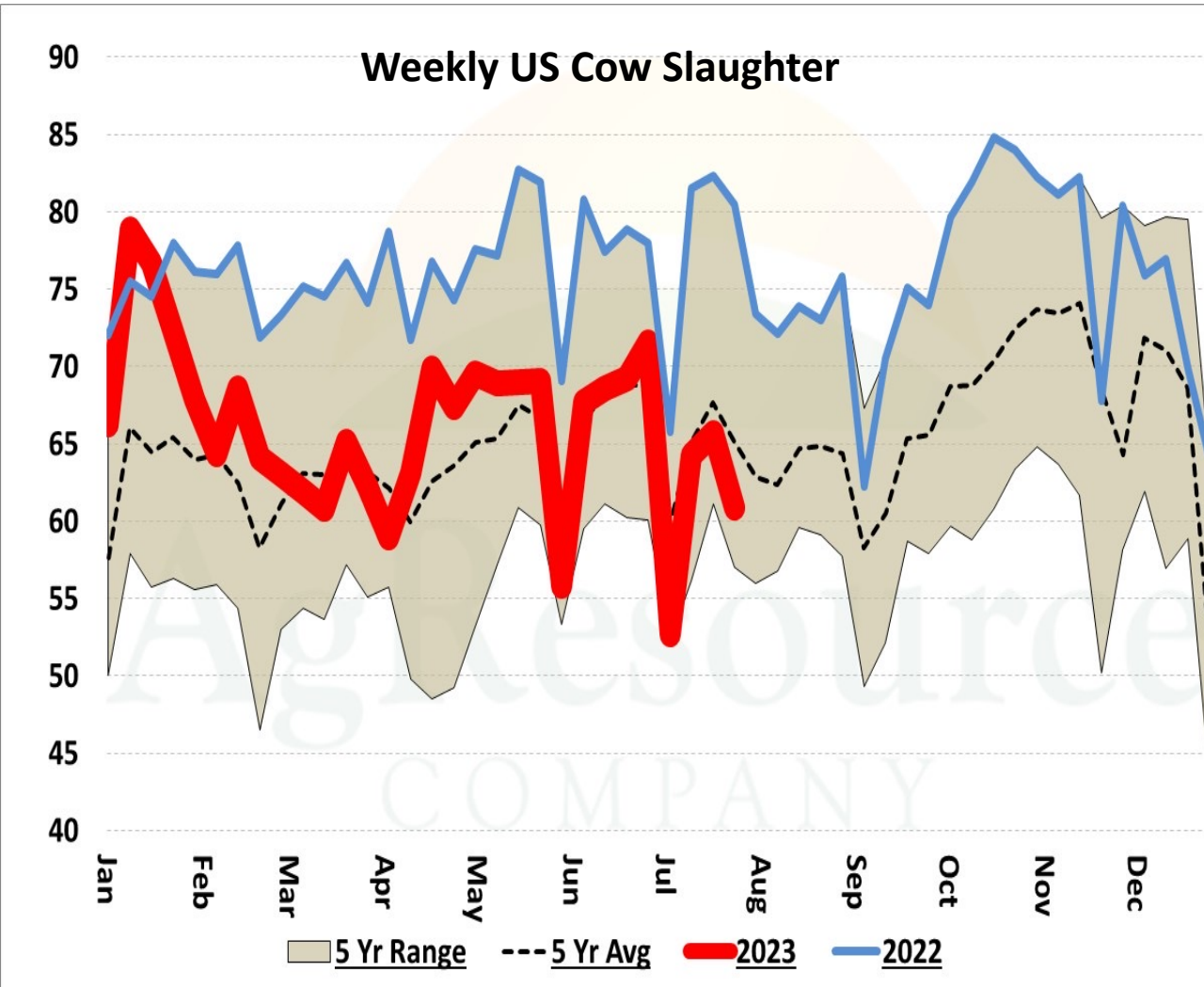
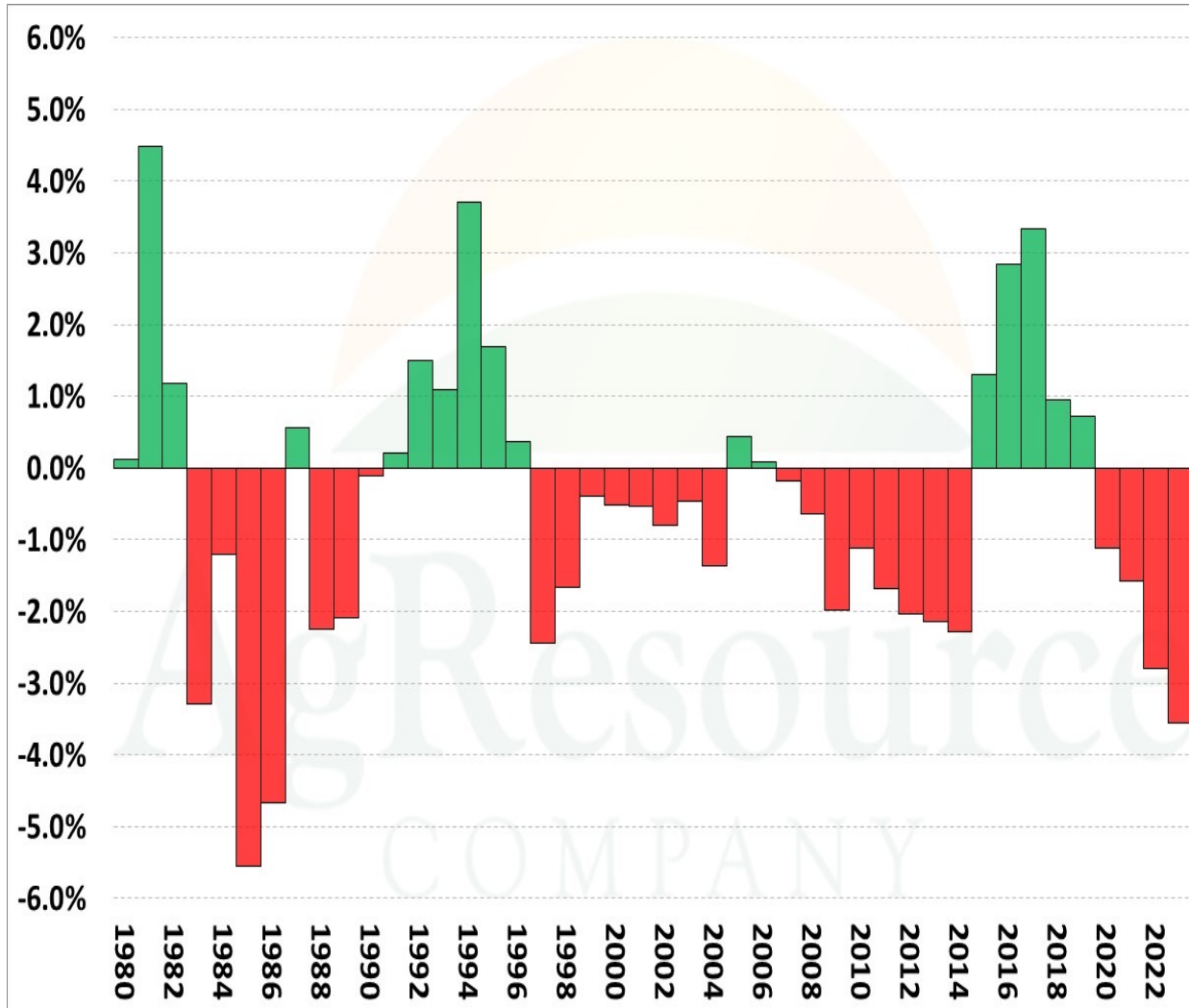
Cattle/Corn Spread (\$/Head) and CME Feeder Cattle Index



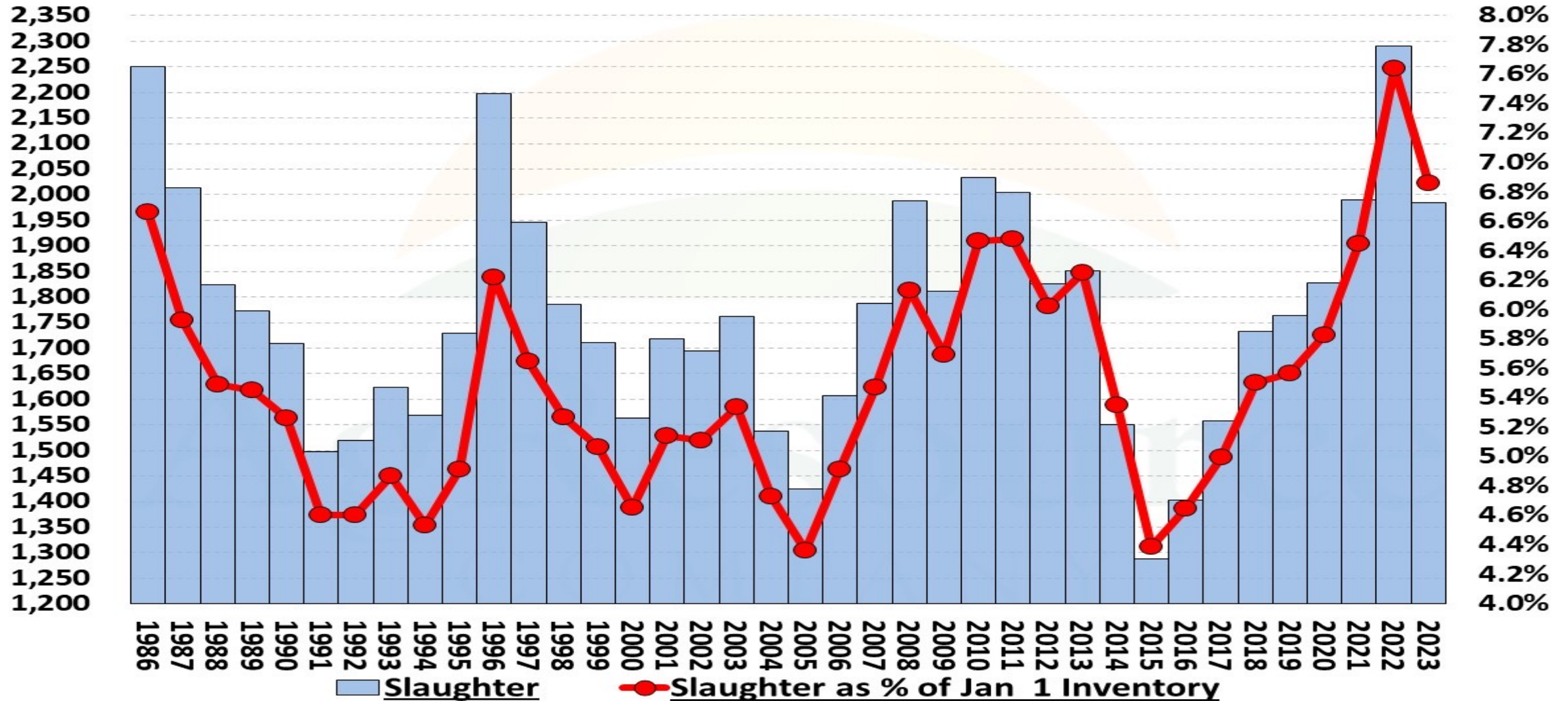
Cattle Herd Expansion; Limited Evidence of Herd Rebuilding – Greater Market Incentives Needed



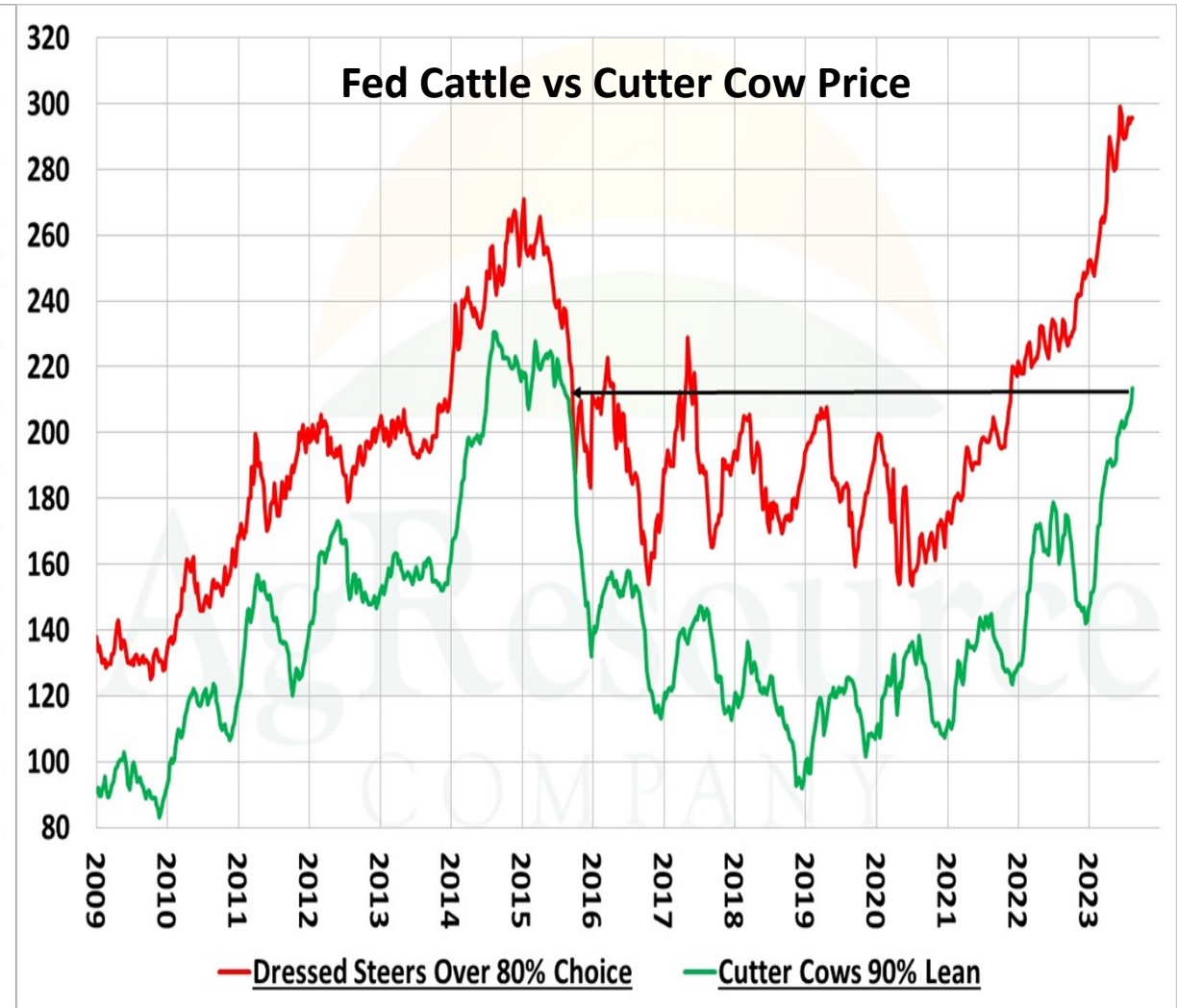
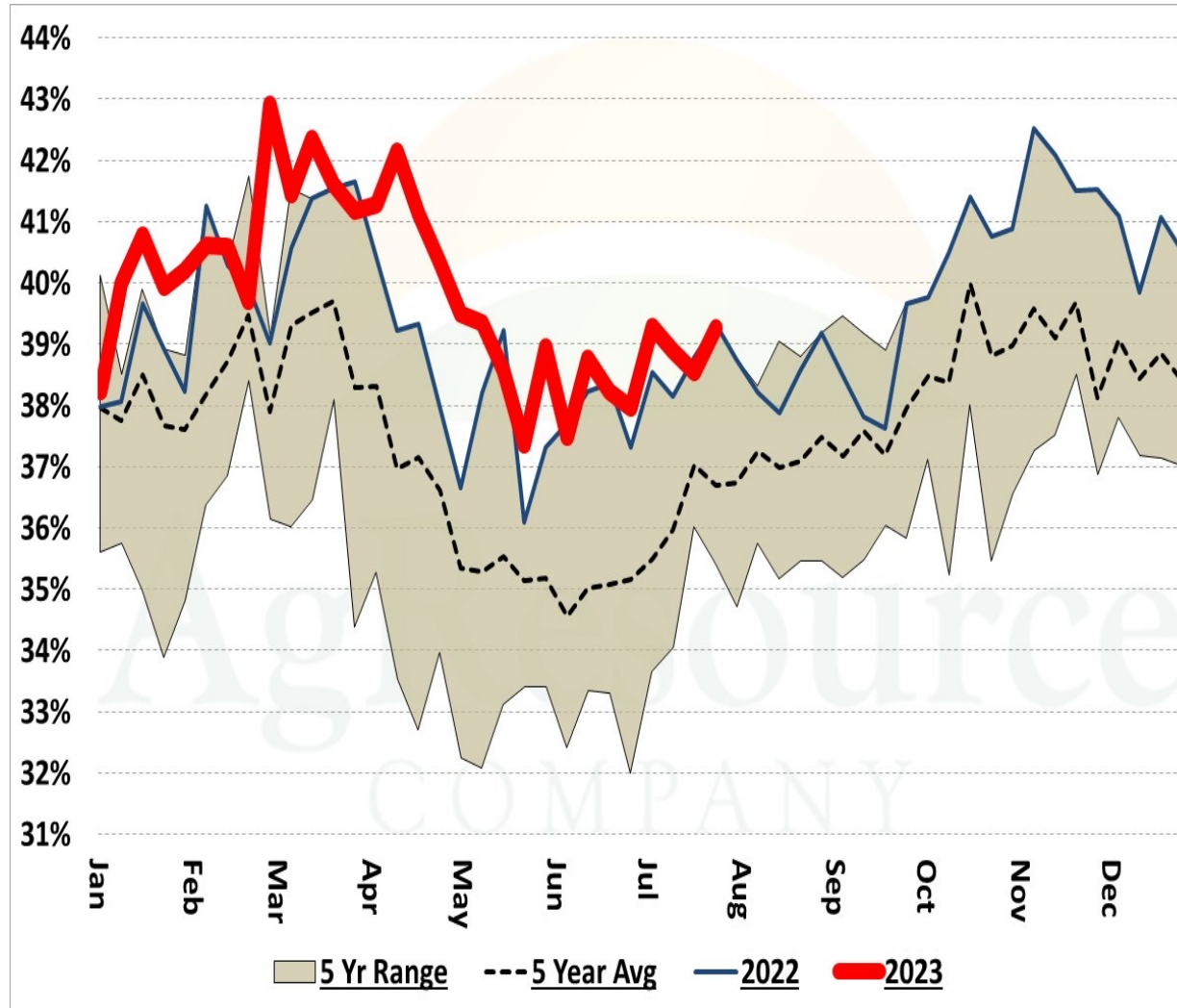
Year-Over-Year Change in US Beef Cow Herd (January 1st)



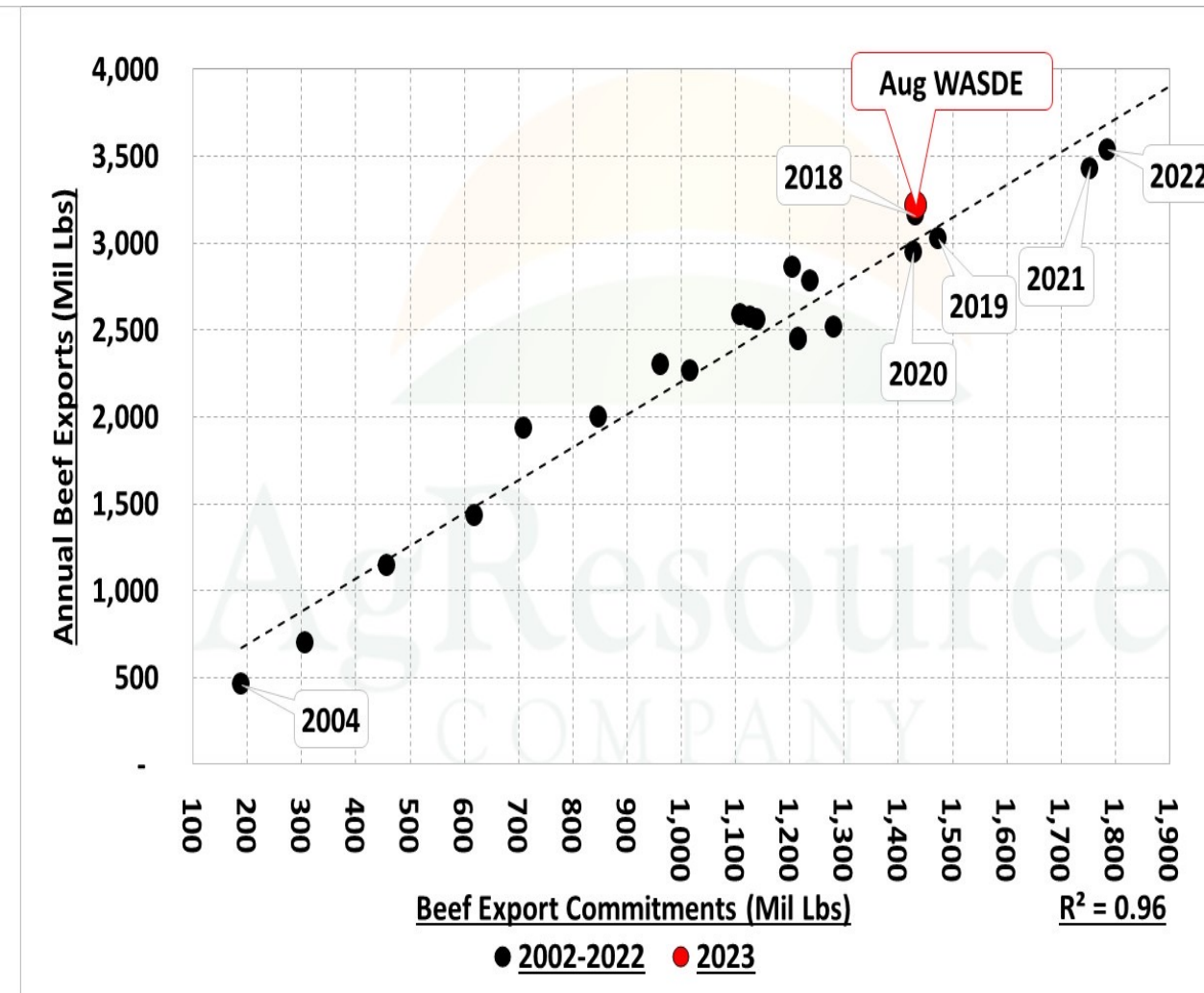
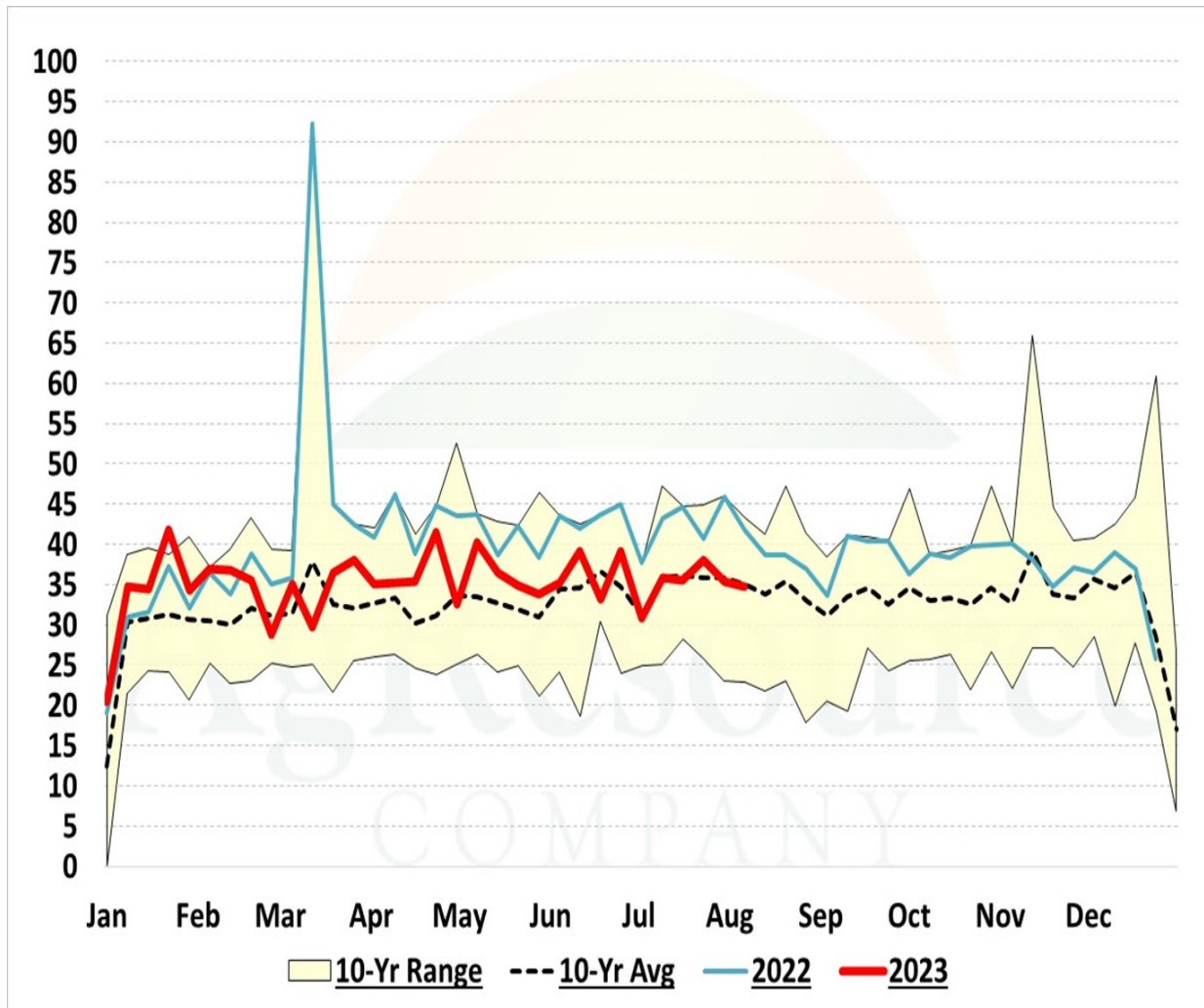
Cumulative US Beef Cow Slaughter (1,000 Head)



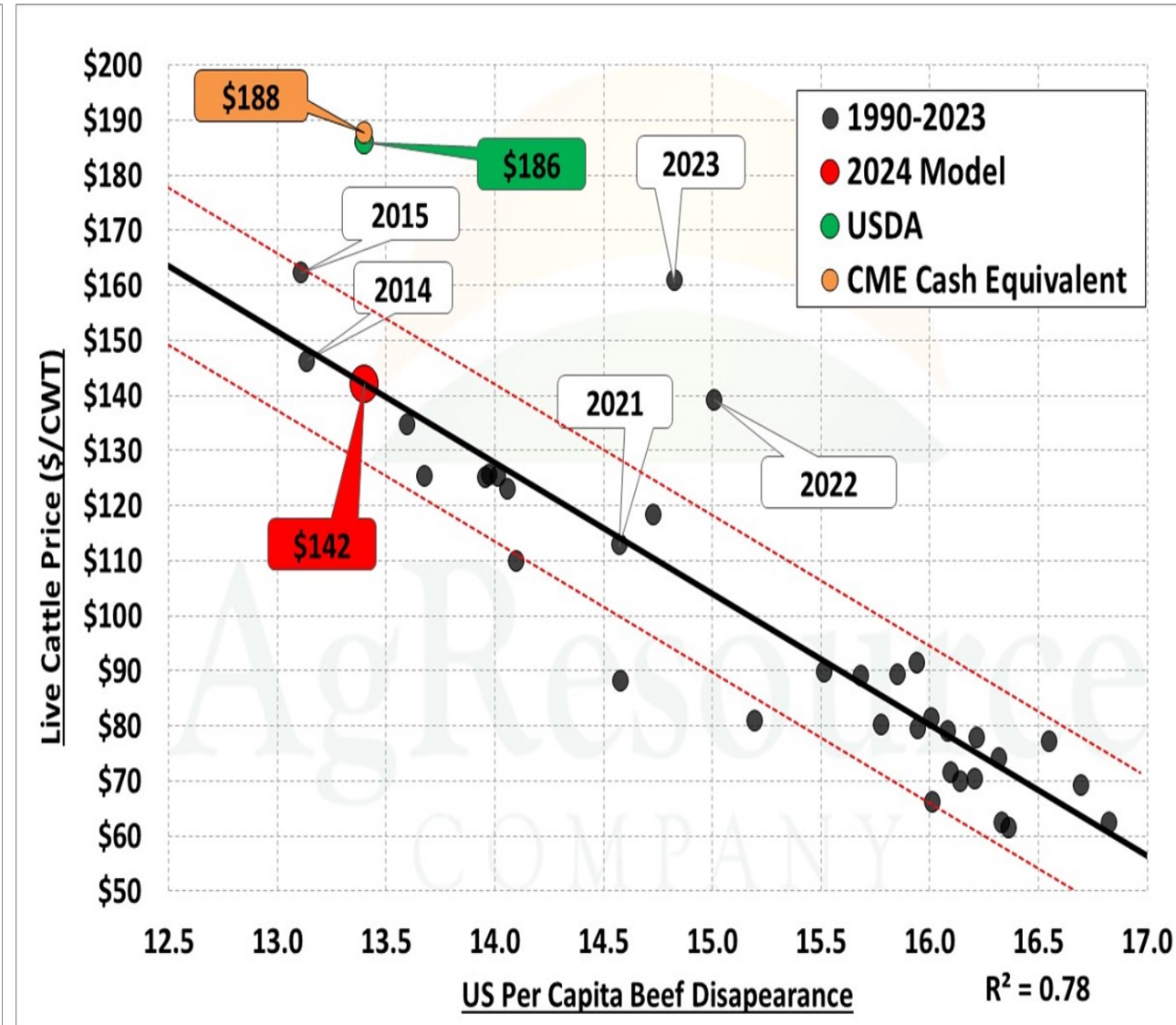
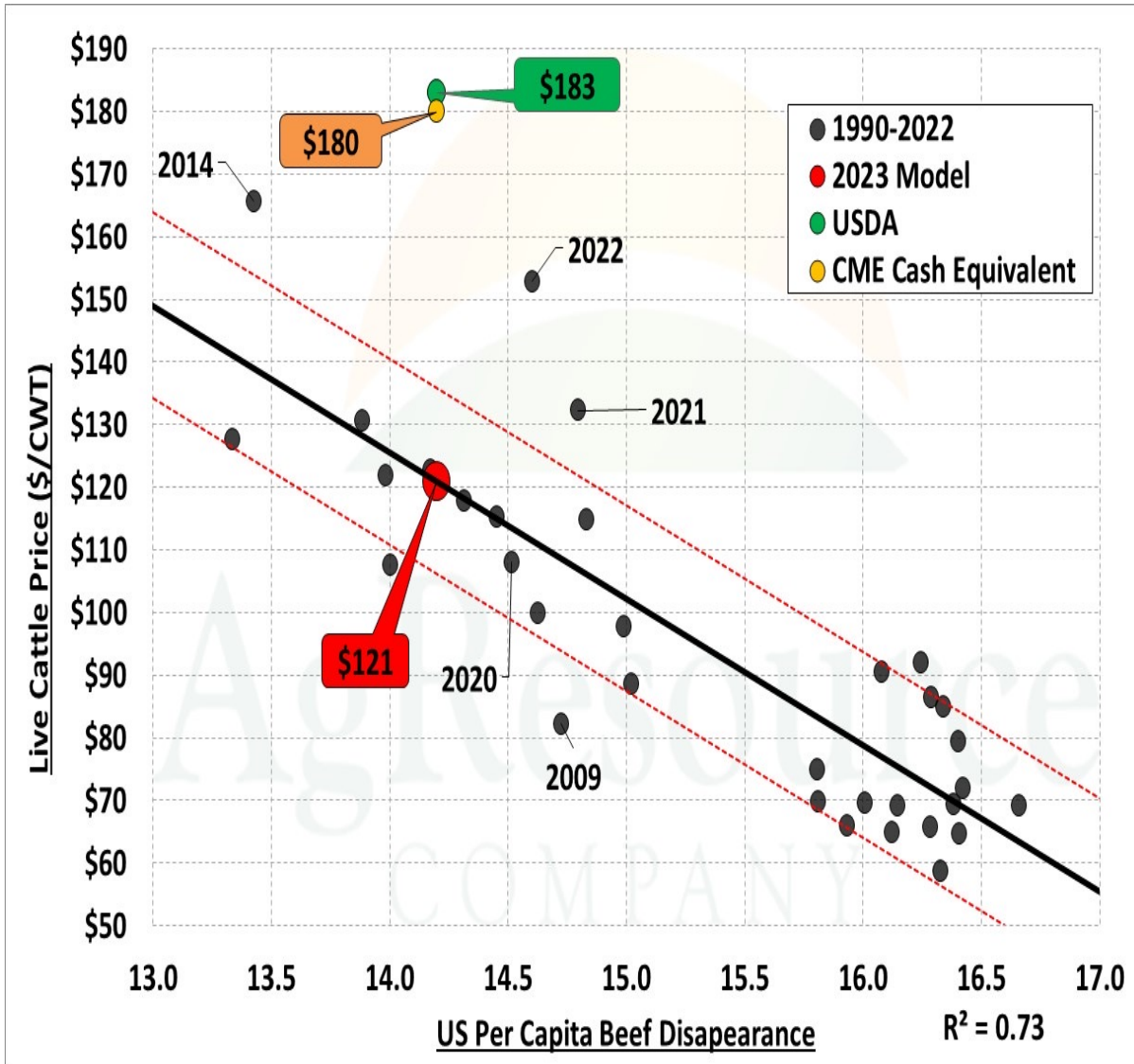
US Heifer Slaughter as % of Total Steer/Heifer Kill; Fed Cattle vs Cutter Price



Weekly US Beef Exports and Annual Exports (Mil Lbs)



Q4/Q1 Live Cattle Price Models



It's not enough to know the news.
You need to trust the analysis.

Thank You